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AMERICAN GAS ENGINEERING JOURNAL

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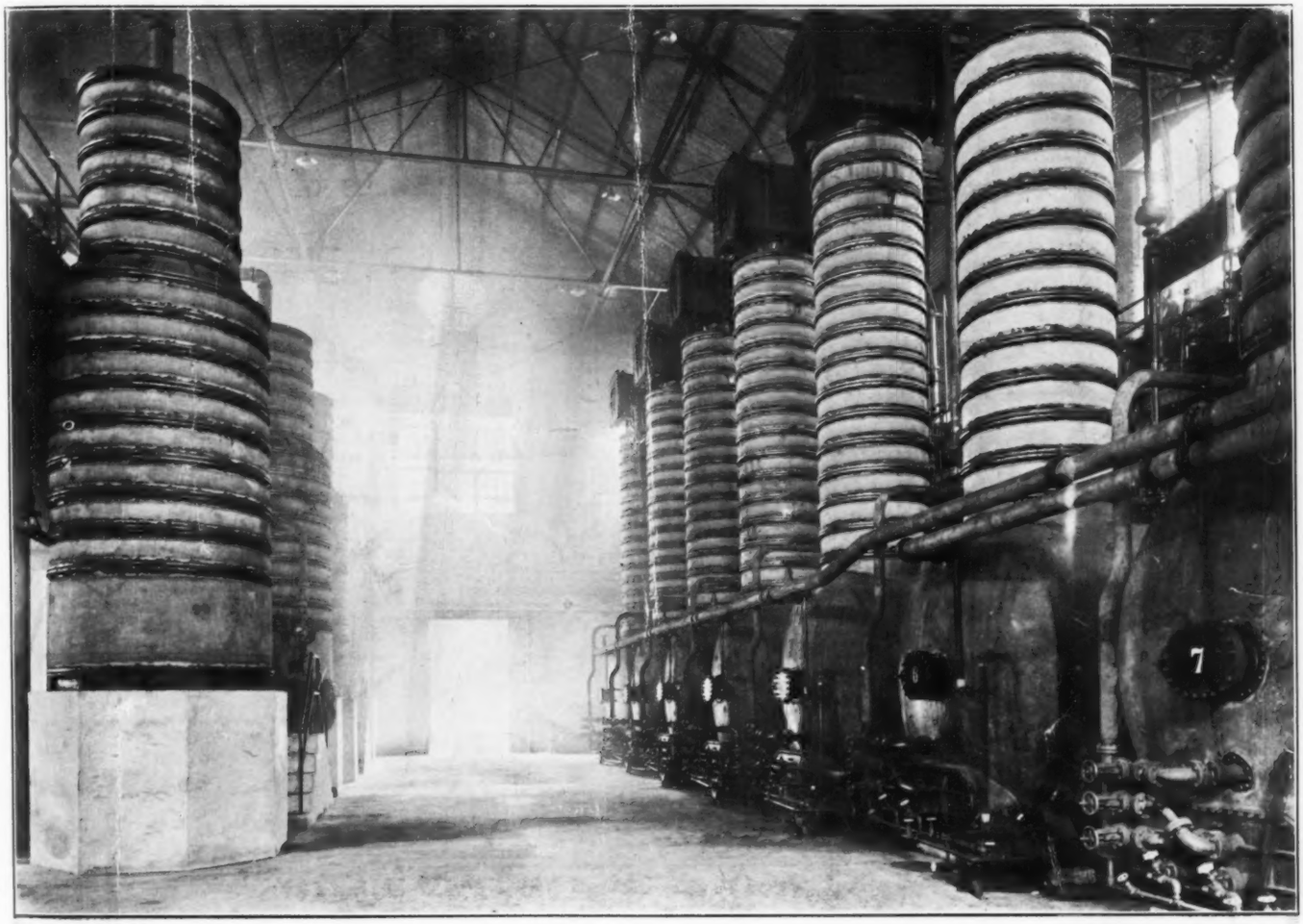
AMERICAN GAS LIGHT JOURNAL

NOV 5 - 1917
SMITHSONIAN REPORT

VOL. CVII., NO. 18
WHOLE No. 3113

NEW YORK, SATURDAY, NOVEMBER 3, 1917

Subscription $3 per year
$4 Canada $5 Foreign



BATTERY OF PURE AND CRUDE STILLS AND WASH OIL STILLS
CAPACITY 13,000 GALLONS PURE PRODUCTS PER DAY

RIVER FURNACE COMPANY, Cleveland, Ohio

Designed and Built by

H. KOPPERS COMPANY, Pittsburgh, Pa.

Largest Builders of Benzol and Toluol Recovery Apparatus in the World

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ADVERTISERS' INDEX, PAGE 18

NOTE:—

This advertisement is only to keep
you reminded of the

U. G. I. Vertical Retorts

The best system of coal carbonization
in America today

Figures prove this and the guarantees of

THE UNITED GAS IMPROVEMENT CO., Philadelphia

Back it up

The Gas Machinery Company

Cleveland, Ohio

COAL GAS PLANTS **WATER GAS PLANTS**

BY-PRODUCT MACHINERY

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FORMERLY THE AMERICAN GAS LIGHT JOURNAL

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Relieving Consumers of all Details in Connection with Handling Installations—a Contributing Factor to Success of Baltimore House Heating Efforts

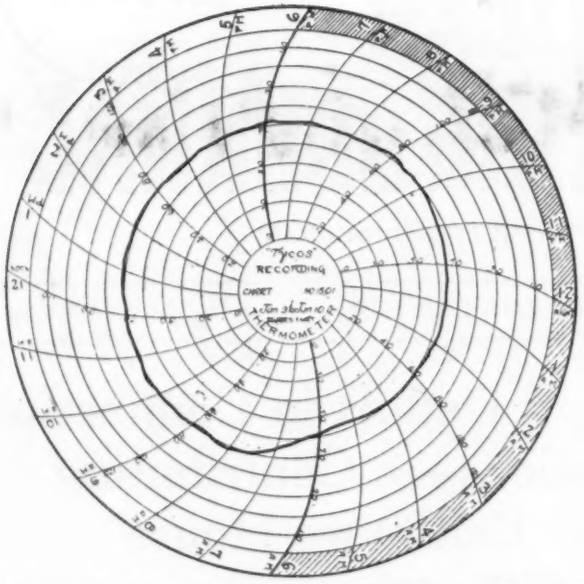
Valuable Lessons Experience Has Taught—Vast Opportunities for Improvements Promise Well for Future of All-Gas House Heating—Important Points for Consideration in Making Installations

By EUGENE D. MILENER
Industrial Power & Fuel Department, Consolidated Gas, Electric Light & Power Company of Baltimore

The heating of whole houses with artificial gas has opened an entirely new field to the gas man and has proved to be practically the last word in the mechanical equipment of residences. In all other methods of heating there has always been left something to be desired. With coal heating there is a lack of an even temperature, there is a constant necessity of doing manual labor, besides the continued presence of a great amount of dirt and dust. With natural gas heating there is always the dread of the supply failing, which requires a duplicate plant in the cellar so that a coal fire can be quickly kindled as the need arises. Community heat has been tried and found wanting, due generally to the plant and mains becoming overtaxed, with the result that the service suffers during the very cold weather.

The fact that all these objections can be overcome was demonstrated in Baltimore last winter and the prospects are will be even better demonstrated the com-

SECTION OF A BLOCK OF EIGHT HOUSES ENTIRELY HEATED BY GAS



24-HOUR TEMPERATURE CHART OF HOUSE HEATED WITH GAS-FIRED STEAM BOILER

ing winter. In the 500 or more dwellings heated with gas, the company has recommended the entire elimination of coal from the cellar. Last winter there were a number of boilers and furnaces connected in tandem with the idea of using coal when the severe weather came and using gas during the moderate weather. A careful check at the end of the season showed, however, that although all these houses had bins full of coal ready for use, not one ton of coal was used in any of them during the whole winter. The conclusion reached was that a man who could afford to put in gas wanted to absolutely eliminate the coal equipment and enjoy gas the whole season and not be jumping first to coal and then to gas.

Many people have the idea that to heat with gas all that is necessary is to stick a pipe in the furnace and light it. This, however, is far from correct, especially with manufactured gas. Even with gas at 35 cents a thousand and coal at $8.00 or $8.50 a ton the average fuel cost of heating an entire house with gas will be at least 25 per cent more than with coal, and to keep this difference from being greater it is necessary that the best equipment only be used and to operate that equipment in a sensible manner.

The boilers and furnaces installed by the Baltimore company were highly efficient as to heat transmission, and, although they were designed for natural gas, they could readily be adapted to the needs of artificial gas with very few alterations. A central gas heating plant should involve, among others, the following features:

Ample capacity to heat properly in the coldest weather.

Equipped for accurate thermostatic control.

Positively free from back firing.

Provide for the removal of condensation.

Have pilots that will not go out under any conditions.

Provide ample means for keeping all interior parts clean.

Provide ample draft for the removal of burned gases, but prevent down drafts from blowing out pilots.

In the case of steam and vapor boilers, provide absolute control of the pressure at all times.

In addition all boilers should have the customary try cocks, water columns, safety valve, drain valve, altitude gauge, etc., the same as coal boilers. Hot air furnaces should have ample openings for cold air and provide the proper pitch for hot air pipes.

All boilers and furnaces should be protected against heat losses by asbestos covering or dead air spaces.

We feel that the appliances adopted in Baltimore take care of all these provisions, but the room for improvement is great and no doubt the next few years will see wonderful steps forward.

In the case of coal boilers converted to gas by the installation of burners in the fire box, all the above provisions have to be looked after. In addition the draft has to be adjusted and baffles provided so as to increase the efficiency and keep down operating costs to the lowest point. One of the hardest problems we had to solve last winter was the making of burners for converted boilers. We early found that there were no stock burners on the market that could be put in fire boxes and work on our gas. So we had to in nearly every case design and build special burners for each installation. These specially built burners have given splendid results and held up well under severe operating conditions.

(459) 72-8-17

HEATING INSPECTION RECORD

INDUSTRIAL FUEL DEPARTMENT

Name Wm. H. Clark

Location 4039 Garrison Av

Nature of Building 3 story cottage

M.R. Book	Ledger	Folio	Date of Installation
M-9	130	942	July 1916
Primary Rating		Schedule	Type of Heating System
7000		D	Steam

Type of Boiler or Furnace 42-5 Bryant

Type of Thermostat #60 Minneapolis, A.C.

Type of Water Heater #4 Aut. | Type of Range gas.

Other Gas Appliances laundry stove.

Service	Furnace line	Sq. ft. Radiation	Cu. ft. Space Heated
1 1/2	1 1/4	400	
Meter Record	Size	Make	Number
	30	Maryland	159427

REMARKS: Boiler & pipes covered. Windows & doors weather-stripped

Month	Date	Cons. 1916	Date	Cons. 1917	Date	Cons. 191...
Sept.						
Oct.		23700				
Nov.		39800				
Dec.		64300				
Jan.		87500				
Feb.		88700				
Mar.		68000				
Apr.		58200				
May		35600				
Totals						

over

UNIVERSITY HOMES DEVELOPMENT—A RECENT UNDERTAKING THAT DEPENDS EXCLUSIVELY ON GAS FOR HEATING

I believe it is absolutely necessary for the gas company to maintain supervision over all plants. If burners, cut-off valves, thermostats, etc., are not adjusted properly the bills will run too high, the service will be unsatisfactory and the customer will become dissatisfied. After each installation is completed, either by the company's shop or by an outside plumber, our inspection department takes charge of the plant and becomes responsible for its final adjustment and continued operation. Every detail of the plant is first inspected and adjusted. Its operation is then fully explained to the customer. After that monthly inspections are made in order to keep every part of the equipment in first-class condition. Complaints of whatever nature may arise and are attended to promptly.

Inspectors Relieve Consumer of All Details of Handling Plant

In introducing a new and somewhat complicated heating system like an artificial gas plant it is necessary in some cases for the inspectors to attend to nearly every detail except winding the thermostat clock at night. So many of the people that now heat with gas formerly had furnace men to watch their coal fires, and have so little idea of mechanics, that it is necessary to make the plant practically work itself. The inspectors try to relieve the customer of all details of managing the plant. The accompanying cut shows a copy of the sheet our inspectors carry with them when making their rounds. All data pertaining to the plant is shown, as well as the consumption of gas the previous year and the consumption to date. Thus a quick comparison can be made should the need arise.

In operating artificial gas plants we have found the following methods to be the most satisfactory. Keep a small pilot (something like an automatic water heater pilot) constantly burning. Keep the thermostat at 55 deg. from bed time until rising time, when the temperature should be advanced to 70 deg., this latter operation being taken care of by the thermostat clock while the family is asleep. During the day let the thermostat turn the burners on full when heat is needed and off altogether when heat is not needed. This is directly opposite to the natural gas method of operation, which is to let two or three burners burn all the time, whether heat is needed or not, the thermostat coming on occasionally as additional heat is needed. Our method is necessary to save gas and also to prevent excessive condensation.

Securing Co-operation of Heating Contractors

When we first started to install gas heating plants it was impossible to get the slightest co-operation from any heating contractor. Those who were not downright hostile to gas were extremely skeptical, with the result that not one gas boiler was installed in Baltimore last winter except by the gas company. However, by constantly encouraging the contractors to handle gas boilers as well as coal boilers, and by never purposely underbidding them, we have succeeded in persuading several of the higher class firms to make gas installations and look for quite an increase in their sales this coming season.

Two things are necessary to secure the co-operation of heating contractors in handling gas boilers. First, prices must be such that they can make as much on a gas installation as they can on a coal installation of the same size. Second, they must be assured that the gas company will take care of all ordinary complaints that are likely to arise. For this second reason we have agreed to give all installations made by outside contractors the same inspection service that our own boilers and furnaces receive. I consider it very important to get and to keep the good-will of the better class of heating contractors. As a rule most people will consult their heating men before making any changes in their plants. The result is that often the contractor practically decides whether coal or gas shall be installed. Our company is working hard to keep this good-will, and service to their customers as well as ours is the means being employed.

We have conducted a quiet campaign to interest architects in gas heating, with the result that an increasing number of inquiries are received from this source every month.

As 90 per cent of the plants sold are to owners living in their own houses, it is very difficult to interest building operators in gas heat. They take the stand that it adds to the first cost of the house and also to the yearly upkeep, and therefore is something to shun when

building houses to sell. However, one builder, who is probably the most successful operator in the city, has been persuaded to install gas in a whole development, and the result is what is probably the largest gas heating layout in the country—"University Homes." Undoubtedly other progressive builders are watching the sale of these houses, and if they sell as expected will adopt gas as standard heating for their higher grade dwellings.

Cost of Heating Higher than with Coal

And now a word as to the cost of heating with gas last winter in Baltimore. The cost was higher than with coal. But the public soon found out, after its first spell of skepticism was over, that its advantages far outweighed its disadvantages. They found that the stock arguments of the gas salesman were not idle talk, but that gas actually did do away with all labor, dirt, worry and attention, and that the temperature actually was kept constant regardless of outside weather conditions and that the dread of always being at the mercy of an irresponsible furnace man could forever be dismissed.

Baltimore has been benefited by the introduction of gas heat as an active competitor of coal. By continually advocating thermostatic control of heating plants and preaching the gospel of clean cellars, the citizens have begun to take notice and a far better and cleaner heating equipment is steadily growing and making itself felt throughout the heating trade. But best of all, people are beginning to realize that there is such a thing as "quality heating" as distinguished from "cheap heating."

Formerly cheapness was the sole consideration, as coal, the only fuel used, was essentially a crude fuel; but with the introduction of a refined fuel like gas, with its unfailing supply, such as has been maintained in Baltimore for 101 years, a degree of comfort and cleanliness has been reached that could never be approached with the old fuel.

Each Per Cent of Pulley Belt Slip Means Loss of One Per Cent in Yearly Coal Pile

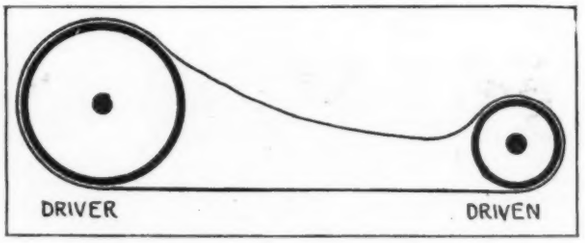
How Slip May Be Determined—Fallacy of Drilling Holes in Belt to Prevent—Advantages of Cork Inserts

By W. F. SCHAPHORST

I have read experiences in various publications relating to belts and pulleys, and have a number of times seen it claimed that slipping was stopped by drilling holes through the rim of the pulley, thus allowing the "entrapped air" to escape. It was also claimed, in connection with these articles, that belt compounds and higher tensions failed to stop the slip.

The principal reason why I am interested in these experiences is that I have a number of times tried to find air currents around pulleys due to the running on and off of the belt, but have never succeeded. Hold a lighted match close to a high-speed pulley and the direction of the flame will show the direction of the current of air. It will be found that the current is practically nil.

For that reason I have not taken much stock in the air-cushion theory. It may be that such a thing exists, but if that is true why isn't there a vacuum on the side of the pulley from which the belt leaves? This



vacuum would have a tendency to hold the belt against the pulley and thus aid the pulling powers of the belt. Thus the vacuum would neutralize the effect of the air cushion.

Cork Inserts

It is true that a flat pulley may have a tendency to form a sort of air cushion more readily than would a crowned pulley; but air being so light, I cannot understand how or why it should persist in being dragged through with the belt. Air cannot be pulled along as though it were a piece of cloth. And as for a crowned pulley, the air is there "pinched out" in two directions, whereas with a flat pulley it is pinched out in one direction only.

Not long ago a certain pulley manufacturer drilled holes in all of the pulleys he made with this air-cushion idea in mind, but I have not seen them advertised for several years, so it looks as though the idea sort of "fell through." Of course, I may be mistaken.

It occurs to the writer that if these experimenters who have drilled holes in their pulley rims would try inserting corks in them, perhaps the pulleys would work even better. Cork insert pulleys are on the market now and are giving satisfaction. It is a fact that the coefficient of friction between cork and leather is high.

Holes drilled in a pulley rim may represent one hundredth of the area of the pulley—perhaps even less. How can all of the air find its way through this small area? Why should it find its way through this small area when it is so much easier to escape along the periphery? Besides, it must be remembered that in forcing air toward the center of a shaft it is being forced against centrifugal force. The natural tendency is for the air to flow outward and not inward.

Method of Determining Slippage

Here is a method that will be found handy for determining belt slip if conditions in a given drive are such that the driven pulley can be operated for a while "without load."

The method is based on the assumption that when no power is being transmitted through the belt there is no belt slip. That, surely, is logical. The driven pulley, then, will rotate as many times per minute as it is possible for it to rotate. When the belt is transmitting full load, however, there is bound to be belt creep and possibly some slip, and the driven pulley will not rotate as rapidly as when "unloaded." The difference in revolutions per minute, then, divided by the revolutions per minute made "unloaded" multiplied by 100 gives the percentage of slip.

For example, in this sketch is shown a typical drive. Let us say that the driver pulley runs 200 r.p.m., while the driven pulley runs 340 r.p.m. in an unloaded state. When the belt carries full load, though, the driven pulley makes only 320 r.p.m. What is the percentage of slip?

Using the above rule we get

$$\frac{340 - 320}{340} = \frac{20}{340} = 0.059$$

$$0.059 \times 100 = 5.9 \text{ per cent slip}$$

Belt slip is an important item, because each per cent of slip virtually means a loss of 1 per cent of the yearly coal pile. If this slip can be reduced to 2 per cent—and it should—the yearly saving on coal expenditure would be about 4 per cent.

In order that there can be no misunderstanding about the rule, here it is in the form of a formula:

$$\text{Per cent slip} = 100 \left\{ \frac{\text{R.p.m. of driven pulley when "unloaded"} - \text{R.p.m. of driven pulley when "loaded"}}{\text{R.p.m. of driven pulley when "unloaded"}} \right.$$

Some Wastes That Can Be Eliminated in Gas Company Operations

A. B. Day Emphasizes Need of Economy in Gas Industry—How Changes Should Be Made

It is doubtful if a better field for the application of modern methods for the elimination of waste is available than the various branches of the gas industry, asserted A. B. Day in his paper on "Eliminating Waste" presented at the recent annual meeting of the Pacific Coast Gas Association. Strict regulation by governmental commissions, the constantly increasing price of commodities, the tendency toward lower rates, together with the character of the work to be performed, make it necessary to be on the alert for improved ideas. During the past few years especially we have learned that methods of eliminating waste which previously would have been considered insignificant are problems of moment and matters in which we are vitally interested.

Following Blindly in the Path of Precedent

Too often managers have recognized only the old-established way of doing things, following, without question or investigation, the plan adopted by predecessors. However, a short interval of time has wrought a complete change in the manner of doing business, and the successful manager of to-day is the one who conducts his business in a modern, up-to-date manner.

In establishing methods and means of eliminating waste it is frequently necessary to make changes. These should be made gradually and with tact and judgment, in order to gain the confidence of all concerned. In order to pass the good work on to men under them, it is necessary that superintendents, foremen, etc., accept the changes to be made in the right spirit. Too rapid a revision of system and method is often demoralizing, and, instead of reducing costs, will, on the contrary, increase them. Efficient men in charge with inefficient subordinates, or vice versa, are equally undesirable, and search should be made for both.

Waste of Material

By waste of material is meant those items which are necessary to keep the various branches of the mechanical departments in repair, such as piping, fittings, machinery, etc. The present excessive high cost of all materials has also served to bring home to us the necessity for strict economy in their use.

In all probability there are many instances of materials being thrown away in many of our organizations which, if saved, could be disposed of at a profit. For illustration: Scrap leather which accumulates from cutting meter diaphragms, and which formerly was destroyed, can now be disposed of to good advantage. Many other junk materials now command a price which makes them worth saving.

Another way of eliminating waste of material is in careful inspection work. This should be done by a working foreman or inspector, and should include all classes of work performed. It is not necessary that an inspection of each job be made, but a sufficient number should be checked to insure good work. If fitters, metermen, servicemen, etc., know that an inspector is liable to examine their work at any time, they will be more careful and do better work.

To eliminate waste of material the purchasing department was established. All materials should be purchased through this department, and it should be the aim to buy the best possible materials for the least money. The purchasing agent should be furnished by the management with a set of standards for his guidance, and he should not deviate from them unless for a good and sufficient reason. In furnishing these standards a survey should be made of all departments, the object being to minimize, so far as possible, the kinds of material to be purchased. This will enable workmen to be more familiar with their stocks, and will also be the means of reducing the storeroom investment. Storeroom stocks should be checked at stated intervals, and materials which have become obsolete or useless, either from deterioration or from a change of standards, should be salvaged, and nothing but "live" stock be allowed to remain.

Using Cup Grease for Lubrication

An item which will prevent waste in the engine room is the substitution of cup grease for oil. There are many cases where grease will lubricate a bearing as well as oil, and at a very much lower cost; also, a saving of time required in filling oil cups is accomplished. If oil must be used, some method should be devised to catch the surplus which will accumulate on account of the tendency to use more oil than is required for proper lubrication. This oil may be put through a separator and used again. A return system of piping which will care for this surplus (or waste oils has been found useful.

In checking gas manufacture the manager should be furnished with daily records in condensed form so he may keep in touch with operating conditions. It is quite as important that the works superintendent keep detailed reports of supplies used for each machine, boiler or engine. By the segregation of these reports it is possible to know just what each machine is doing, compute its efficiency, and, if necessary, make such changes as are required.

Waste of Labor

Waste of labor is the most important subject to be considered, and it is very perplexing to solve on account of the impossibility of watching each worker, this being especially true in large organizations. Men should be trained to know how to employ their time to advantage and be made to realize that their positions depend upon an honest day's work, and that loafing or "killing time" will not be tolerated.

A few practical suggestions are given which will eliminate waste of labor and which, it is hoped, will be of some general benefit:

When it is necessary to sharpen a large number of picks or gads, it has been found that a small power hammer will enable the blacksmith to turn out approximately 100 per cent more work, as well as eliminate the necessity of a helper.

The installation of conveyors for handling by-products, and portable cranes for loading or unloading pipe and large fittings, will reduce the amount of labor required.

Metermen and others doing outside work should telephone to the shop on completion of a job to receive additional orders for work in close proximity to the work they have completed. This will save much time.

It has been found that a saving of labor can be made by furnishing each repair man with a kit of standard tools needed in the work he is to perform, and a suitable box or chest in which to keep them. The workman should be held responsible for any loss, and at stated periods the foreman should make an inspection, exchanging broken or poor tools with good ones.

A card system should be installed on which to record storeroom stock. By this method the amount of material on hand is known, and is very useful in taking and checking inventories.

Much benefit is derived from the use of billing machines. One of these machines will handle approximately 1,000 bills per eight-hour day, the work consisting of dating, entering meter indexes, subtracting and extending the amount on the body of the bill and on stubs. Aside from speeding up billing, which is a large item to consider, other advantages are neatness in the appearance of bills and legibility, which eliminate errors of collectors and office force.

The use of an adding machine in the totalling of ledgers shows a material saving over the time required to do this work by bookkeepers.

A saving of time and money can be effected by the installation of a printing press and paper-cutting machine. It is not the intention to recommend that all printing be done "at home," and it probably would be contrary to the policy of most companies to do so, but many small jobs that are wanted in a hurry can be done in this way, and with profit.

Routing and Checking Collectors

Quite often an amount of time is consumed by meter readers in checking statements which appear to be erroneous. By attaching a re-read order to the bill, thereby calling attention of the collector to the possible error, he may make such re-read and adjustment as is required at the time the bill is presented for payment.

By careful routing and continuous checking of routes much time may be saved by collectors. The collectors themselves usually are best qualified to make such changes and suggestions as will reduce the amount of time required to perform their work.

As the collector is the only representative of the corporation with whom a majority of the consumers come in contact, special care should be given to his selection. By the establishment of a merit system, very good results have been obtained. As a suggestion: Have a 100 per cent quota for each month. Credit 60 per cent for most collections made, consideration being given to number of presentations, 20 per cent for accuracy, and 20 per cent for general conduct and deportment. A list of collectors, with their percentages, should be posted each month, the man with the highest percentage at the top and the man with the lowest at the bottom. The posting of this list will be the means of creating a friendly rivalry among the men for first place, and will result in much better work being done.

Men in all departments should be encouraged to submit suggestions which they may have for the betterment of the service, saving in labor or material, etc. Careful consideration by someone in authority should at all times be given to these suggestions. If a suggestion is adopted, notice to this effect should be posted on the bulletin board giving proper credit where due. If not adopted, a letter should be written expressing thanks and appreciation for the suggestion, explaining in detail why it is impossible or impractical to adopt it.

Transportation Waste

In the elimination of transportation waste, consideration should be given to the routing of cars used to transport men and material; this is especially true in a city where streets are irregular. When it is necessary to work in outlying districts, the shortest route to a given point should be ascertained by the foreman and the men given instructions to follow it.

It should be insisted that when a car is not in motion the engine be idle. Often an employee will stop for a short time and allow the engine to continue running, causing a needless waste.

A mileage standard should be adopted and a check kept upon the gasoline consumption of each car. When a driver fails to keep up to or above the standard established, an investigation should be made to ascertain the cause.

It is quite important that a standard make of car be adopted for the various kinds of work to be performed. When a large number of the same make cars are in use, the repair men become expert at their work, thereby saving time; this also warrants repair parts being carried in stock.

In the selection of tires, tests should be made to ascertain which gives the most miles per dollar, and then standardize on that make. This will allow the purchasing agent to demand better discounts on account of the larger volume of business. Employees who drive cars should understand that injury is done to tires by sudden stopping; turning corners at an excessive rate of speed; running on tires which are not sufficiently inflated; driving on car tracks, etc. Waste also occurs from drivers having numerous small accidents, such as bending fenders and breaking lamps. Violating traffic laws in a source of much annoyance and waste of time. It has been found that much of this waste can be eliminated by insisting that employees pay the cost of accidents and fines unless it can be definitely shown that they were not at fault.

The observance, so far as possible, of the "safety first" movement should eliminate waste in many ways, and should be given careful consideration.

Gas Used to Heat Tin-Baking Ovens From 90 to 120 Ft. Long

Installation Enables Plant to Do What Was Hitherto Considered Impossible; Namely, Drying Sheets Suspended Vertically—Mixture of Air and Combustion Gases Dries Volatiles and Varnish Before Running Can Commence

What has hitherto been deemed impossible in the tin-decorating industry—namely, the drying of decorated sheets suspended vertically instead of laid out flat—has been accomplished in the plant of the Federal Tin Company at Baltimore, Md., by applying gas to the operation.

A No. 8 Kemp system of 5,000 cu. ft. per hour capacity, manufactured by the C. M. Kemp Manufacturing Company, of Baltimore, is used in horizontal-conveyor ovens 3 ft. wide by 8 ft. high by 90 to 120 ft. long, built by the tin company itself.

Most Efficient Operation Demanded

The most efficient operation, including maximum output, was required of these ovens, as of all other equipment in this modern plant.

A rotary press was installed at each end of the oven, one feeding the sheets into the conveyor as it travels through the top of oven and the other feeding into the conveyor as it returns through the bottom of oven, thus securing a dual use of floor space occupied, of construction cost and of fuel consumed. The ends of the wire sheet supports are bent into hooks, in which the sheets rest when these wire supports are in an inverted position while conveyor is traveling through bottom of oven.

The ovens, which are of fireproof construction and of portable sections, are heated to any desired temperature from 150 deg. Fahr. to 400 deg. Fahr. by means of the self-sustaining air and gas mixture supplied by the Kemp system, which has been applied to each oven through thirty-three burners so arranged as to blast the flame into wrought-iron tubes extending crosswise of the oven near the bottom at intervals of about 3 ft. The ends of tubes opposite burners are closed by welded steel plates.

Around the burners and the ends of tubes into which the burners enter there are adjustable air shutters. The tops of the tubes are perforated to permit escape of the heat into oven, and so arranged as to provide even distribution throughout length of tube.

Temperature Control

For purposes of temperature control, there are two pipe manifolds to an oven, each supplying half the burners and each with its thermostatic valve. When the burners are lighted and the flames blasted into the wrought-iron tubes, the flames create a suction entraining atmospheric air through the air shutters, which combines with the combustion products and is discharged through perforations in top of tube. The entrained air takes no part in the combustion, as the air and gas mixture supplied by the gas system contains all the air necessary for combustion. The air shutters are made adjustable, so that the proportions of air and combustion products can be varied, and should it ever be desired, combustion products alone can be discharged into the tubes.

The length of flame at burner does not exceed 6 in. and no flame issues through the openings in top of tubes. As there is some little pressure in the tubes and always a discharge of combustion products from the tubes into oven, the possibility of combustible gases from the sheets becoming ignited is precluded.

Eliminating Labor in Drying Process

It has always been the practice of tin sheet decorators to hold the varnished and coated sheets in a horizontal position while baking. After the coat of varnish is applied, the sheets are placed horizontally on racks which when filled are wheeled into an oven. Loading and emptying the racks is a slow and laborious operation, besides which dust collects on horizontally-placed sheets.

Tin decorators have claimed it impossible to bake varnished or coated sheets in a vertical position because of the varnish or coating running, causing the sheet to be streaked and spoiled.

W. I. Tuttle, vice-president of the Federal Tin Company, a man of wide experience in tin decorating and a recognized authority in his line, and others consulted have not known of varnished or color-coated sheets being held vertically and baked in continuous oven until the gas-fired installation at the Federal Tin Company plant.

The advantages are: Greatly increased output, with reduction of labor, and the one continuous oven equipment serving for printed sheets, coated sheets and varnished sheets; reduced floor space; less fuel consumption; work turned out in less time, and less equipment. These ovens are accomplishing in one hour what would ordinarily require three hours in the standard type of oven heated by the usual method.

The manner of baking varnished sheets here referred to is an improvement of no small import, and is made possible and brought about by the mixing of air with combustion products as described. Hot, dry air is an excellent drying medium, and the mixture of air and combustion gases evaporates the volatiles and sets the varnish before it has a chance to run and without the temperature of the mixture being sufficiently high as to injure the product. While the conveyors are run at the maximum speed for this character of work, the varnish and coating are thoroughly baked in the passage through oven and finish is perfect.

The Federal Tin Company has been making its varnished and coated sheets as described for six months, now has no box ovens, and is building additional conveyor ovens. The average gas consumption for all classes of work is 9,000 ft. per oven per day, which is extremely light when it is considered that the ovens are doing double work, each supplied by two rotary presses and the maximum output per press 20,000 printed sheets per day, or 40,000 per day per oven.

Historical Precedents Indicate That Present Period of High Prices Is Not Temporary, But Will Durate for Several Years

Thomas Conway, Jr., Deplores Tendency of Rate Making Commissions to Assume That Present High Costs Utilities Are a Matter of Passing Duration

The cost of operation of every class of public utility is rising so rapidly that only those who are giving close attention to their operations are fully aware of the serious situation which has developed. The public at large is unacquainted with the serious dilemma into which the utilities have fallen, declared Thomas Conway, Jr., professor of finance at the University of Pennsylvania, in an address delivered before the New Jersey Utilities Association at Atlantic City, Oct. 26.

The essential difficulty is common to all forms of utilities. The amount which remains for the investor is the difference between gross receipts—representing the amount of service sold, multiplied by the average rate—and cost of operation, including taxes and depreciation. Rates have remained stationary while operating costs have increased. The result has been a decrease in net earnings available for interest and dividends.

The rise in operating costs has been due entirely to the tremendous increases in the cost of materials and supplies of every class and to the higher wages which the companies were compelled to pay because of wage advances in other industries which are the utilities' competitors for labor.

Tendency to View Question as Temporary Matter

The utilities are turning to the public service commissions for relief. They are asking that rates be sufficiently increased to equalize the growth in operating expenses. The future of the public utility is dependent largely upon the broad-mindedness with which well-founded pleas are received and considered. Among a few public utility commissions the disposition seems to be to treat the advance in operating costs as a purely temporary matter which will pass away in a few weeks or months, and which therefore may be allowed to continue without any remedial steps being taken to offset its influence.

A man who endeavors to predict future prices enters the realm of pure speculation. Almost every prediction which has been made concerning the effect of the war upon America has proven more or less inaccurate. There are certain things, however, in the history of the past which it is important for us to remember and which may furnish a clue to conditions which will prevail in the next few years.

There are only two periods in recent history which furnish a situation in any way similar to the present.

The first of these periods is that covered by the French Revolution, the Napoleonic struggle and the years of reconstruction succeeding it. In this period, America was engaged in war with England, so that, practically speaking, the whole civilized world was at war. There were no public utilities, of course, at that time, and to a large extent business was so different in character that the occurrences of those years may not be duplicated. The course of wholesale prices in those years in the main followed our recent experiences. There was a rapid rise in prices of all forms of raw materials. The currency of practically every belligerent was greatly inflated. In general, prices continued to rise with scarcely an interruption until the end of the war in 1815. In the year 1816 there was a sharp fall in prices, but as soon as business had readjusted itself to conditions of peace, prices again rose and did not recede to what might be termed normal levels until 1821, or five years after the end of the great struggle.

The second period of almost universal war occurred from 1851 to 1871. In those years our great Civil War was waged. England, France and Russia waged the Crimean struggle; Austria and Prussia were at war in 1866, while the Franco-Prussian War occurred in 1870 and 1871. Again almost the entire civilized world was at war, although not simultaneously. The average level of prices throughout the world was again abnormal. The increase, measured on a gold basis, reached its maximum in 1864, being almost 50 per cent in excess of the average prices of 1851. From this high point prices gradually receded until they were approximately 20 per cent in excess of the normal level in 1851. This condition prevailed in the years 1869, 1870 and 1871. Following the close of the series of wars, prices again sharply advanced, the maximum being reached in 1874. Prices did not return to normal until 1880, almost ten years after the close of the Franco-Prussian War.

If history is any guide, it would appear that there is a strong probability of abnormally high prices prevailing over a period of years.

Gambling on Speedy Passing of High Prices

The public service commissions must make a choice between gambling upon the speedy passing of high prices and the adoption of a conservative policy which assumes that high prices will prevail for some years. The latter alternative would allow the utilities to advance rates until the recession actually occurs.

It seems to me there can be no question that the spirit of the public utility law in every State is that these corporations shall be permitted to earn a reasonable return under all conditions. Theirs is not a speculative business in which they must take long chances and in which success is to be rewarded by very large profits.

Public utility profits are closely limited in good years, and because of this limitation they must be sustained in years of adversity. The problem of fixed rates and varying costs of operation was very accurately stated by the Public Service Commission for the Second District, New York, in its first annual report, issued in 1907. The commission in discussing electric railway problems said:

"It must be borne in mind that the cost of operation varies from time to time owing to the amount of wages and the cost of material. The exigencies, however, of the passenger rate demand that it should be fixed and inflexible at least through a term of years, irrespective of the fluctuations of the cost of operation. This is a very serious practical problem. Assuming that the owners of a railroad are entitled to a given return upon the capitalization, and that the gross earnings remain the same from year to year during a season of low prices for material and labor, there may remain a considerable surplus arising from the fact that the cost of operation is low. This surplus may be disposed of by increasing the return to the stockholders, or it may be extinguished by lowering the rate. The public is apt to insist upon the latter course. If this disposition of such surplus should be made, we are confronted by the difficulty

that when the cost of operation has measurably increased, owing to the prevalence of higher prices for labor and material, a deficiency is created. The deficiency must be met, either by decreasing the rate of return to the stockholders, which, being only reasonable before, should remain constant, or by increasing the price of service to the public.

"If the public is to receive the benefit of the low prices, it is difficult to see why it should not bear the burden of the high price. If the stockholders are not allowed to gain extra advantage out of the increased profits of the railroad, no reason is apparent why they should bear the losses incurred in bad seasons. If they are entitled to a fixed rate of profit upon a given basis, then, obviously, if the public reaps the benefit of the profit it must also bear the burden of the loss which may inure owing to the varying costs of successfully operating the railroad."

Commissions the country over have reduced the rates of utilities in the profitable years, and now, as the New York Commission said, in the years when profits decline, it is only fair that the public should bear the cost through higher rates. I am mindful of the fact that there are one or two instances where corporations have pursued the policy of setting aside a contingent reserve for the express purpose, among other things, of taking care of increased operating costs in future years.

But this situation is unusual. There are very few utilities which have set aside such a reserve—in fact, many of the public service commissions have specifically ruled that the creation of a reserve of this character was not to be permitted. The commissions have chosen to take the view that service must be rendered at cost, including a fair return upon the capital invested and, in pursuit of this policy, rates were reduced, and the chance to build up a surplus against the proverbial rainy day has been precluded.

Utilities Should Have Acted Sooner

The situation which now confronts the public utilities is like that which the railroads are facing. To some extent the railroads were quicker to appreciate the fact of the rising tide of costs and to bestir themselves to avert their evil consquences. In the Five-Per Cent Rate case, in the Western Rate Advance case, and in the recent Fifteen Per Cent Rate case the railroads have urged that rates must be advanced in order to offset the increased operating expenses and to sustain net earnings. The Interstate Commerce Commission has recognized this principle, although the relief granted, in the opinion of most observers, has been very inadequate. The recogniton that net earnings must be sustained is a forward step in the history of public regulation. This same principle must be accepted and recognized by the public service commissions in the regulation of public utilities, if the experiment of public regulation of privately owned and operated utilities is to prove successful.

Duty of Commissions to Protect Investments

The public utility laws of practically every State clearly provide that it is the duty of the commission to protect investments in public utility enterprises. The section of the law concerning the fixing of rates specify that the commission's decision must be based upon the principle that the new rates shall yield a reasonable return upon a fair value of the property. Every act of the commission must be governed by the rule that the companies must show a reasonable profit. This principle, formally expressed in the public utility laws of this country, is eminently sound.

The public's interest in utility regulation is primarily to have good service at reasonable cost. The fundamental requirement is service; the rate to be charged is to be determined by what the standard of service provided shall cost, including a fair return upon the investment.

The public utilities are face to face with the question of a choice of failing to earn a reasonable return upon the investment with the existing standard of service, decreasing the standard of service, in the hope that it will show larger profits or of asking for a higher rate, in order that the standard of service may be preserved and a fair return earned.

It must be said to the credit of the utilities that practically every company has not faltered in maintaining its standard of service.

Even though net earnings are declining, the number of cars which are operated by electric railways, the richness and the purity of the gas which is supplied by gas utilities, and the high quality of service which is rendered by the electrical utilities, have been increased.

This is the proper course, for the utilities accurately appreciate the psychology of the American people when they conclude that we are a nation which will not tolerate poor service.

We are willing to see useless passenger service curtailed when track capacity is necessary for the movement of food, fuel and materials of war, but we are not willing to see our public utilities retrograde in the absence of some imperative national necessity.

It is characteristic of the American people to expect and demand good service, and at heart we are not a niggardly nation. We are willing to pay for what we get.

Recent Decisions Indicate a Discouraging Lack of Perception of Real Situation

This conclusion seems so obvious that it is hard to understand the fogginess which apparently exists in the minds of members of many of the public service commissions. Recent decisions indicate a discouraging lack of perception of the real situation. A few instances will illustrate my point.

A New England commission was recently appealed to by an electric light company to modify a contract entered into in good faith some time ago by the company and a large power consumer, providing for the sale of power at a fixed rate for a period of years. The company introduced testimony showing the large increase in the cost of coal and the commission concluded "that the rate now sought to be put into operation was just and reasonable," but held (I quote from the decision): "The commission would not feel justified in nullifying the contract entered into in good faith by a utility with one of its patrons for service under existing rates for a term of years, where the continuance of service, under the contract, did not in some way embarrass the service to the public or increase the rates to other consumers. If furnishing the service under the contract simply means a reduction of dividends, the stockholders must stand the loss."

The reference to "other consumers" is more specious than real for the commission states in its opinion that the company had only one customer purchasing indus-

trial power. The rate sheet which the company filed applied to all power users.

A decision of this character is most discouraging, for the stockholder is regarded as a man who must be the victim of the contingencies of war. The commission apparently feels under no obligation whatever to see that he receives any dividends. He must gamble for his return, and if because of increasing prices earnings decline he can expect no relief.

I have seen no tendency to recognize the converse of this principle and to allow stockholders to profit through high dividends because of contracts with customers insuring large earnings. His profits must be regulated, but his losses cannot be compensated.

Unfair Attitude of Many Commissions

Another decision recently rendered, which shows the unfair attitude into which many commissions have fallen, has been handed down by a public utility commission of one of the great States of the Middle West. An electric company applied for permission to put into effect a schedule of rates for power service containing a so-called "coal clause," which provided in effect that the rate should vary according to certain clearly specified gradations with the average cost of coal. The rate was to apply solely to power users.

The commission finds in its opinion that the company's cost of fuel has largely increased. It makes no critcism of the rates proposed and states that the record in the case indicates that the company is entitled to an increase in its rates for power service to reimburse it for increased costs of operation which it has experienced. The commission made no criticism of the proposed rate sheet, except to hold that such a plan of rate fixing is illegal where the statute requires utilities to file schedules showing rates in force at the time the service is rendered, imposes upon the commission the duty of fixing just and reasonable rates, and prohibits a utility from increasing any rate except upon a showing before the commission and a finding by the commission that an increase is justified.

The ground for the sweeping condemnation of "coal-clause" contracts is solely that the approval of such a schedule of rates would amount to the delegation by the commission of its power to regulate rates and would relieve the utility from the burden of showing a justification for an increase in rates.

It would be difficult to find a more grotesque line of reasoning. If the proposed successive changes in rates were in any respect inequitable, the commission could have modified the rate sheet so that at any given price for coal the rate which was to be charged the consumer would be just and reasonable. The plan of having rates for power customers vary automatically with the cost of fuel is essentially a scientific basis of rate making. This scientific basis is sweepingly condemned, because it puts the power of rate making in the hands of the utility rather than with the commission. in spite of the fact that the changes, as made, have been approved in advance by the commission at the time the rate sheet was approved. Are our commissions falling to such a low estate that they insist that a utility must come before them as a suppliant as frequently as possible? Is it their intention to utterly destroy initiative of corporation managers, keeping them constantly under the surveillance of a commission which possesses the power, through a refusal to adjust rates as costs change, to inflict punishment upon the company for any real or fancied offense of its officers? Such a decision can only be classed as a captious abuse of power and a specious play upon technicalities.

Delay in Securing Action of Any Kind from the Commissions

Not only are the utilities suffering from the short-sighted policies of many commissions, but the situation is further complicated by the interminable delays in securing action of any sort from practically all of the commissions.

A recent study made in Massachusetts shows that the average period of time elapsing between the filing of a petition for higher rates and the decision of the commission is approximately one year. Delays of this length are frequently fatal to a sorely-pressed utility.

The real facts are that the provision of law requiring action by the commission on every proposed rate places such a burden on the commission that expedition is impossible. The public utility laws should allow the utility to institute higher rates on its own motion, giving to the commissions the power to reduce the rates, after investigation, in case the necessity for larger revenues cannot be established by the carrier.

The Real Task of the Utilities

Some commissions have shown courage and vision. Others have demonstrated a desire to shirk responsibility and to "play to the galleries" with a so-called popular decision rather than to face squarely facts and conditions. Looked at from a selfish standpoint, we can readily understand why commissioners, with a comparatively insecure tenure of office, have an intense desire to cultivate public approval. After all, the utilities cannot expect the public utility commissioners to commit political suicide. You cannot expect a large measure of courage from commissions until public opinion will support them in advancing rates where necessary.

The task of the public utility is essentially that of public education.

There are no longer any secrets in the public utility business. Every fact and figure is subject to scrutiny by anyone who cares to investigate. Public utility companies must educate the public as to their problems and difficulties. They must win public confidence, and this can only be done by laying the true facts frankly and openly before the public at all times.

We all have an abiding faith that the public means to be fair and will do the right thing. The denial of this principle involves the confession that democracy is a failure.

The difficulty is that the public does not understand the real facts; they are too often misled by those who have a selfish interest to advance or who are ignorant of real conditions. It is the duty of the utility to see that through educational publicity the real facts concerning its business, its finances, its problems and its needs are forced upon the attention of every person in its community. If this is accomplished, the difficulties of securing courageous and far-sighted action by commissions will automatically disappear.

What the Educational Campaign Should Accomplish

The educational campaign in my opinion should endeavor to accomplish the following results:

(1) The public must be convinced of the sincerity of the utility and of its desire and intention to be fair. No campaign can succeed unless the public believes that

the utility is telling the exact truth in presenting its plea for relief.

(2) It is the task of the utility to convince the public that investors in public utility enterprises must be protected because this course of action is to the selfish interest of the community. Ample protection to capital and the insurance of a reasonable return invites new capital into public utility enterprises, and new capital is essential for the healthy growth and progress of the utility.

(3) The public must be convinced that it is the chief loser through a financially crippled utility because an impoverished company cannot continue to furnish good service, provide additonal facilities necessary to meet the growth in population, and keep abreast of the progress of the art through the introduction of new methods and facilities.

(4) The people must be shown that the essential question is the cost of good service, which they demand and to which they are entitled. They must see that the problem is essentially whether they desire an inferior service at the present rate or the highest standard of service, paying therefor whatever rate is necessary to cover operating expenses, depreciation and a fair return upon an honest investment.

(5) Finally, I believe it is the duty of the utilities to persistently point out where the responsibility rests for the decision as to the class of service which shall be rendered and as to the fairness of the treatment which the utilities receive. The responsibility for the future of privately-owned public utilities rests with the commissions. If our utility plant stops growing, if capital forsakes the industry, and if service deteriorates because of unwise commission action, the companies must make it very clear where the responsibility rests and what is necessary to restore health and vigor to the industry.

How the Gas Companies are Helping the Nation

THE CONSOLIDATED GAS, ELECTRIC LIGHT & POWER COMPANY, of Baltimore, Md., employees are well represented in the 50 per cent of Maryland's first quota that are now in camp, the following men being among them:

Louis Bottomer	Salesman
Andrew Coleman	Laborer
Robert Gilmore	Guard
Charles Glassmyer	Painter
C. Hamer	Laborer
Raymond Jordan	Wireman
Oswald Just	Elevator Conductor
D. Kellogg	Foreman
John Kierchner	Fireman
J. P. Koengis	Assistant Operator
T. R. Klem	Clerk
Elbert Krausz	Chauffeur
William H. Kuhn	Boiler Fireman
Harry LeFevre	Storeman
Charles S. Lillard	Machinist Helper
Raymond Lurz	Machinist Helper
H. Meeks	Wireman
Charles Merryman	Laborer
Solomon Mitchell	Wireman
August Miller	Storekeeper and Clerk
J. F. Monaghan	Driver
George T. Parrish	Wireman's Helper
M. A. Polster	Chief Testman
Louis C. Quantmeyer	Storeman
J. L. Rasch, Jr	Clerk
George A. Reier	Lineman
Louis A. Schaffner	Asst. Storek'r and Clerk
Alvin Scharf	Helper
John W. Scherer	Bill Clerk
J. Schweiger	Fitter
Albert G. Stumptner	Draftsman
H. R. Tieman	Assistant Operator
Louis Wharry	Helper
A. Wildberger	Helper
John Herman Zaiser	Draftsman

THE SAN DIEGO CONSOLIDATED GAS & ELECTRIC COMPANY, of San Diego, Cal., is supplying gas to the U. S. A. Cantonment at Linda Vista, fifteen miles distant, and gas and electricity to the Marines' Camp Kearney, the U. S. Naval Training Station and several companies of Coast Artillery encamped on the Exposition Grounds at Balboa Park, and two radio stations. The following employees are at present in the military and naval service:

J. P. Adams	Naval Militia
S. E. Clyne	Major Coast Artillery
C. J. Estep	Eighth Company Coast Artillery
R. G. Shively	Ensign Naval Militia
L. D. Hopking	National Guard California
F. A. Madison	U. S. Navy
J. C. McComb	Naval Militia
D. R. Prather	U. S. Navy
R. B. Campbell	Officers' Reserve
T. P. Richardson	Eighth Company Coast Artillery
Geo. F. Talbott	Eighth Company Coast Artillery
D. H. Perkins	Army, Quartermaster Dept.
M. Costa	Hospital Corps
A. E. Atkins	U. S. Coast Patrol
D. J. Jewell	Fifth Company, Coast Artillery
Murry Breeden	U. S. Cavalry
James Quinn	U. S. Navy
Frank Prec	Private, Army
B. E. Nowland	Student Aviator
Harold Barlow	Private, Hospital Corps
W. H. Symons	First Lieut., Officers' Reserve
H. R. Peckham	First Lieut., Officers' Reserve
F. D. Myers	Second Lieut., Officers' Reserve
C. B. Pickett	Private, Army
C. T. Krymer	Private, Army
Sydney W. Smith	Private, Army

Sixty-two employees of the company are subject to draft. R. L. Clarke is general superintendent of the company.

ARTHUR R. WELLWOOD, formerly district superintendent for the Central Hudson Gas & Electric Company at Poughkeepsie, N. Y., who is now a first lieutenant of engineers in the Officers' Reserve Corps, can be addressed at P. O. Box 478, Wichita Falls, Texas. He is at present working in an engineering capacity on the construction of a Government aviation cantonment, but expects soon to be transferred to the gas defense division.

AMERICAN
GAS ENGINEERING JOURNAL

FIFTY-NINTH YEAR

Published Weekly by
AMERICAN GAS LIGHT JOURNAL, INC.
42 Pine Street, New York, N. Y.

ELBERT P. CALLENDER, *President*
STANTON G. KRAKE, *Vice-President*
FREDERICK A. SOUTHWORTH, *Secy-Treas.*

EUGENE C. MILES, *Editor*

Subscription $3.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines.
In Canada, $4.00 Foreign, $5.00
Single Copies, 10 Cents.

WESTERN MANAGER
E. B. FRITZ

CHICAGO OFFICE
537 So. Dearborn St.

Entered at the Post Office, New York City, as Second Class Matter.

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Holding Back Increased Production of Gas

Our news columns have kept us in touch with the difficulties the Indianapolis company is facing. This is a low-rate company and many consumers have discovered, or imagine that they have, that they can save money by using gas instead of coal at present prices for house heating. Further, they carry this belief to the extreme that, in some cases they use the gas range as a house heater. Thus the company with a daily capacity of 10,000,000 cu. ft. and a maximum of 11,500,000 cu. ft. under perfect conditions finds itself faced with a demand for 16,000,000 cu. ft.

It is explained that it has been and is impossible for the company to increase its productive capacity through sheer inability to obtain materials.

From various points throughout the country, the most notable being Chicago, we hear daily of gas companies finding difficulty in obtaining coal sufficient to assure an uninterrupted gas supply.

The American Gas Engineering Journal believes it is to the national interest to place no obstacle in the way of any resident who desires to use gas in place of coal for any reason whatever; house heating, industrial work, etc. It does not, of course, endorse or advocate wasteful uses of gas, such as heating the house by means of the cooking range.

It does not base its belief upon theory, but upon precedent as established in England, where Government officials have pleaded for increased use of gas.

Manifestly greatly increased consumption means increased production, and, as a corollary, new construction in very many cases. We know that the ship-building program is as vital a problem as any the Government faces. We know that increased storage capacity at gas works requires steel plates, which are a most vital element in the ship-building program.

The gas industry has shown its willingness to subordinate its interests to those of the nation. If by alloting to it certain quantities of steel plates the success of the ship-building program would be endangered to any degree, then let the gas industry wait, unless it be more to the national interest, upon close examination, to enable it to increase its productive capacity. Also a close examination might reveal that given quantities of plates might be accorded the gas industry without detriment to the Government's own plans. And so on with all materials.

We know that as yet the gas industry has not been called upon to a general extent to produce light oils for explosives. But we know also that it inevitably will. Even co-operating to the utmost, on the basis of present gas outputs, we see a shortage in the supply possible as against estimated needs. There is a possibility that the emergency may durate longer than at present believed. In such case the shortage

to present indications will be greater. In any case a 50 per cent increase in production and use of gas —if we could prepare our plants to meet such a demand—would be a very comforting factor of safety in insuring that not one American soldier should die because his country failed to provide him sufficient munitions.

We do not know that a general turning over from coal to gas throughout the country—it would, of course, not be humanly possible to provide manufacturing capacity in a relatively short period to meet such a contingency—would materially reduce the total quantity of coal consumed, though it probably would. But it would materially increase the amount of explosives to be used in blasting the way to democracy's victory and materially reduce the number of American lives that will have to be expended to attain that ideal.

Removing the Last Obstacle to the By-Product Oven for the Manufacture of City Gas

Cities which have rigidly enforced smoke-elimination ordinances in the past are winking now at violations; this on the principle that no law can exist that is not practical. Smoke elimination to a very large degree has been practical in the past by the simple expedient of compelling the use of anthracite coal or coke in place of bituminous. But to-day anthracite coal is not so readily obtainable, and there is ample need of all the coke that is being produced. Those who manufacture the latter are not accumulating many gray hairs worrying about a market for their product.

F. K. Ovitz in his report on Coking Illinois Coals, published in Bulletin 138 of the U. S. Bureau of Mines, declares that coke has about the same heating value as anthracite coal. A great deal of the latter is used where bituminous is debarred by the smoke abatement regulations. If a sufficient supply of coke were available to be used in place of the anthracite that is not obtainable, authorities would not wink at violations (even slight ones) of the smoke ordinances.

The principal reason why the by-product oven has not been adopted extensively for city gas supply is that the latter is a relatively regular demand, while the operations of the by-product plant, and consequently the volume of its gas output, are dependent upon industrial conditions and the demand for metallurgical coke.

The development of a domestic market for coke of sufficient magnitude would do away with the one great obstacle to the adoption of the by-product oven by the gas industry. It should not be difficult to develop such a market, when the use of bituminous coal is prohibited.

In heating value coke is on a plane of equality with anthracite. Produce it to sell at a lower cost and the market is secured. Replacing anthracite alone would provide a market sufficient to keep a good many by-product ovens busy, and the market would be regular and consistent in its demand.

Paving the Way to Easier Industrial Fuel Gas Sales

During the current year a considerable number of gas installations for industrial work have been described in this journal. The object of the JOURNAL in publishing the descriptions has been to provide the industry with practical information tending towards the complete development of the industrial fuel branch; information of a kind which, though there has been and is a great need for it, no publication had previously made any apparent effort to provide.

The response upon the part of industrial men has been gratifying in the extreme. We did not have to prove to them that there was a dearth of practical industrial fuel gas literature. They had experienced it, and had been held back and hampered in their work as a consequence. What we did point out to them was that each, individually, was more or less responsible for the condition, and that no publication, however willing, could effect a change unless it had their active co-operation; this co-operation, in brief, being a willingness on their part to bring to our attention any new or unique installations they should make from time to time and to describe them in our columns for the benefit of other industrial men.

It would be difficult to calculate the wealth of suggestion or the number of new uses for gas revealed in the industrial fuel articles contributed to the JOURNAL by those who are actually engaged in the development of this branch during the current year. Suffice it is to say that, if properly assimilated, the information provided must have gone far towards making possible a greater future for the gas industry.

This, in fact, was the ideal we set out to attain. But there has been a by-product, we have discovered, that rivals in value the direct service that has been rendered the gas industry through the publication of this information.

In the stress of our effort to fill an acutely-felt need of the gas industry, we lost sight of the fact that in the industries concerned there is just as intense a desire to improve operating methods as there is in the gas industry for new markets for gas. Also, that there are serving these industries journals whose primary purpose is to provide such industries with information tending towards such results, just as it is the purpose of the AMERICAN GAS ENGINEERING

JOURNAL to make the gas man's tasks easier for him to perform.

Our oversight has been called to our attention by several requests from journals serving specific industries for permission to republish articles published originally in the AMERICAN GAS ENGINEERING JOURNAL.

We published these articles to reveal to the industrial gas man uses for gas that might be new to him and provide him with information as to the advantages of gas for specific purposes such as would make it advantageous for the industries concerned to adopt it as a fuel.

The journals serving these industries republished the articles for the purpose of revealing to manufacturers engaged in them how they could more efficiently and economically produce their output.

The authors of the articles in question have therefore served two purposes. They have provided their fellow gas men with information that will enable them to secure a greater volume of new business than they otherwise would, and they have directly and generally carried the gospel of gas as a fuel into circles where ordinarily it is carried by word of mouth; and, through bringing the facts directly to the attention of the managing heads of those industries, are paving the way to easy sales of gas, by his fellow industrial men and themselves to those industries. Incidentally, it might be added, those in the various industries will place a great deal more credence in what they read in the reputable journals pertaining to their particular field than they will in the statements of the industrial fuel gas man.

Indications That High Costs Will Durate for a Period of Years

Gas company managements will agree with Thomas Conway, Jr., professor of finance at the University of Pennsylvania, in the statement made in his address before the New Jersey Utilities Association in regard to the tendency of many regulatory commissions to view the present high costs of producing gas as a temporary matter. The AMERICAN GAS ENGINEERING JOURNAL wonders if we should condemn the commissions too severely, except for their slowness in awakening to their mistake, on this count. Have not many of our managements allowed themselves to be similarly deceived?

We know that these high costs have been a problem, not only since the country entered the war, but for a considerable period before. We know also that there was an apparent reluctance on the part of gas companies to face facts, and concede the desirability of seeking relief through higher rates.

It seems only yesterday that many were vauntingly advertising that, while everything else had gone up, the price of gas had remained the same. It was as late as last April that this journal felt the need of bitterly attacking this attitude in its editorial on "The Place of the American Gas Industry with the Nation at War," and of pointing out to the companies the duty of putting themselves into such a situation that they would be ready to meet the obligation of national service the war would put on them, following it up with other editorials of similar tone and trend and the publication of comments from recognized authorities in the field.

It was only after this time that we began to hear any general demand for increased rates, and this was but a few months ago.

In the meantime the gas companies have awakened to the real situation. Many utility commissions have not.

It would be a bold man who would predict for a certainty what the costs situation will be two years hence. But Professor Conway cites historical precedents that would indicate they will continue to be high. Thus we can advance reasons for believing this will be so. We can advance none for believing they will be lower.

Publications

Effects of Storage Upon the Properties of Coal

Stiff-paper-bound booklet; 44 pages, illustrated. Author, S. W. Parr. Obtainable without charge from C. R. Richards, director of the Engineering Experiment Station of the University of Illinois, Urbana, Ill

The results of a series of experiments, started in 1910, to determine the effects of storage upon the properties of bituminous coal. The object was to devise methods of storing which would avoid the risk of spontaneous combustion and to determine the extent to which coal deteriorates in storage.

Prof. S. W. Parr, under whose direction the tests were conducted, summarizes the results in the bulletin. It is shown that if properly sized and carefully handled, coal may be stored without danger of spontaneous combusion; that the actual loss of heat value, or deterioration, resulting from storage is slight; and that underwater storage eliminates entirely all risk of spontaneous combustion or of deterioration.

The extent of the waste and economic loss incident to the present method of seasonal production, with its attendant abnormal demands upon transportation facilities, is discussed, and it is estimated that the lack of storage facilities in large distributing centers necessitates a capital investment in mines and railroad cars of $500,000,000 in excess of the amount which would be required if production could be maintained at a uniform rate throughout the year.

Merchandising Gas

On Tap!
Hot Water Instantly for Every Need in Every Home
Automatic Gas Water Heaters
(Read or Humphrey)
At "Before-the War" Prices

Chicago Company Shows Versatility of Gas Advertising Appeals

Much Convincing Publicity Holds Good-Will of Consumers, Besides Increasing Sales

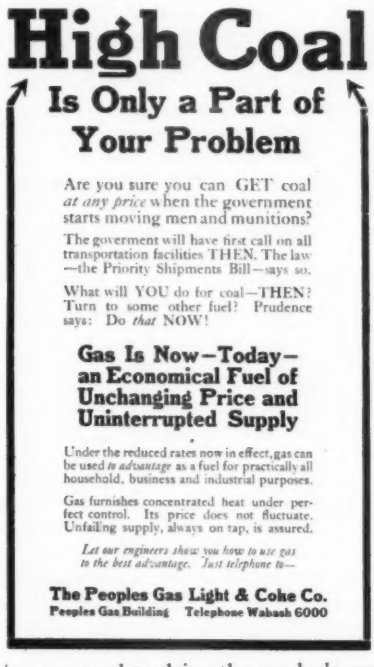
In accordance with policy of the Peoples Gas Light & Coke Company, of Chicago, Ill., the newspapers and every other possible publicity medium have been and are being effectively used, with a far-reaching effect. Many of the other gas companies in the country have not seen the opportunity which such publicity offers to them, and a short review from time to time of this company's activities holds forth many benefits for other companies.

Of course, the wide range of household appliances forms a good opportunity for this company's most versatile advertising department. Many attractive advertisements have been prepared on the water heaters which they handle, and from all reports the results have been more than commensurate with their efforts.

Such attractive captions as "A Cupful or a Tubful When Heated by Gas," the illustration showing a man with a steaming shaving cup and a woman turning the faucet in a bathtub, is bound to attract both the masculine and the feminine buyer.

Action is stimulated by the next display line of the ad reading "Only $20 Now—$3 Now and $1 a Month —But Going Up."

The illustration shown herewith, caption reading, "On Tap," also shows the type of effective display used during their water heater campaigns. The happy faces shown in the border, those on top looking down and those on the bottom looking up, tend to drive the reader's eye directly to the reading matter.


High Coal
Is Only a Part of Your Problem
Are you sure you can GET coal at any price when the government starts moving men and munitions?
The goverment will have first call on all transportation facilities THEN. The law —the Priority Shipments Bill—says so.
What will YOU do for coal—THEN? Turn to some other fuel? Prudence says: Do that NOW!
Gas Is Now—Today—an Economical Fuel of Unchanging Price and Uninterrupted Supply
Under the reduced rates now in effect, gas can be used to advantage as a fuel for practically all household, business and industrial purposes.
Gas furnishes concentrated heat under perfect control. Its price does not fluctuate. Unfailing supply, always on tap, is assured.
Let our engineers show you how to use gas to the best advantage. Just telephone to—
The Peoples Gas Light & Coke Co.
Peoples Gas Building Telephone Wabash 6000

"Seeing Your Fortune in the Fire" is the title of another ad, featuring the Radiantfire heater. The appeal is one of human interest, and at the same time one of economy, due to the fact that many fireplaces will be dark this winter because of the high cost and shortage of coal. However, the ad goes on to explain that the Radiantfire will salvage a part of the coal-user's fortune, which would otherwise go up the flue; and still give the glowing warmth of the "Opal Fire."

Another advertisement, showing the wide range of appeals possible for gas steam radiators, Radiantfires and space heaters, was that of the newspaper advertisement entitled, "Do You Recall the Story of 'La Cigale'?" The copy continuing: "She Danced All Summer and Then Froze with the First Blast of Winter. If you Would Not Be Like Her, Think Now of the Chilly Days and Cold Nights Coming Soon and Then —*the Freeze*." A rather fantastic rendering of this fictitious person heightened the interest of the ad. The appeal was then brought down to the advantage which is to be gained by the consumer in using the various gas heaters.

A timely caption reading "High Coal," as shown in one of the accompanying illustrations, also presents a forcibly arranged type advertisement, and is in direct contrast with the advertisement explained immediately above.

Owing to this company's recent change to the heat unit standard, it was necessary to devote much space to explaining the offer of free mantles. It was decided that a greater response could be elicited from the coupon type ad, a reproduction of which is also shown herewith.

Several special appeals were made through the newspapers, and these, in conjunction with the special representatives detailed for this work, have resulted in 17,000 free gas mantles being installed since Aug. 1.

Guard Your Light
To All Gas Consumers Now Using Flat Flame Burners Exclusively—
YOUR light from flat flame burners will be much less after October 1, when by city ordinance the candle power of all gas in Chicago will be reduced again. Therefore, to all gas consumers who are wholly dependent upon flat flame burners for illumination, this company offers—
FREE Two JUNIOR Mantle Lights
—burner, mantle and chimney complete, and installed without charge.
One Junior light will deliver nearly three times as much light as you ever got from a flat flame burner and use less than half as much gas. We offer to give you two of them and to install them without charge; provided, as specified by city ordinance, you are wholly dependent upon flat flame burners for illumination.
Make Your Application at Once
Write us immediately, if you have no mantle gas lights or electric lights in your home—or fill out this coupon and turn it in where you regularly pay your gas bill—and it will receive prompt attention.
The Peoples Gas Light & Coke Company
Peoples Gas Building
Telephone Wabash 6000
To The Peoples Gas Light & Coke Co.:
I am wholly dependent upon flat flame burners for illumination and hereby apply for free installation of two (2) Junior mantle lights as provided by City Ordinance, passed June 25, 1917.
Name
Address

Recommends Selling All Appliances Connected

Committee on Standardization of Gas Merchandising of the Gas Sales Association of New England Takes Up Gas Range as Typical Example

Your committee at its first meeting decided that it would be better to single out one important appliance and carry its investigation and make report covering that particular appliance, rather than confusing the issue by trying to group all appliances or any combination of appliances, explained the Committee on Standardization of Gas Merchandising of the Gas Sales Association of New England in its report on the investigation it made of methods employed in that section in merchandising appliances, which was presented at the October meeting of the association. We therefore selected the Gas Range as the appliance upon which to make investigation and report.

Letters were sent to a number of different gas companies in New England irrespective of their connection with the association, and an appeal was made for an answer to the question sheet which was attached. Fifteen replies were received—two from Maine, one each from New Hampshire, Rhode Island and Connecticut and ten from Massachusetts companies. These fifteen replies were representative and the committee felt it had sufficient data with which to go ahead with its report.

Installation of Appliance

There are a number of different angles at which a subject so broad as the "Standardization of Gas Merchandising" may be approached and your Committee has not gone into the methods or the ways of selling advertising or displaying of the actual handling or connecting of the range, but has rather aimed at what should be included with the range when sold and what should be the basis of charge. The items which we have not covered have been gone into at length by other associations, while the question of equipment and price have been somewhat neglected.

One consideration, however, which is incidental to the service which the customer may get from the appliance he is buying is the proper installation of that appliance, and the committee recommends that the matter of proper-sized pipe and equipment be insisted upon and that the appliance be otherwise properly and satisfactorily installed for the best possible service to the customer. This we offer merely as a recommendation, as the connection of appliance was considered as but incidental to the work of this committee.

The committee recommends that all appliances be sold connected ready to use. The customer must arrange eventually through some service to have the appliance connected —as it is useless to him unless connected—and a single price covering the range and all connections should be more satisfactory to the customer and company alike—to the customer because he has but one dealing to make instead of two or more, and on the average will probably pay less, and to the company because it allows the sale to be completed at once without further expense for recalls, or estimates, with possible loss of the sale or dissatisfaction through excess heavy charges.

Appliance Department Self-Supporting

The committee also recommends that the Appliance Department be at least self suporting. The day when it was considered necessary to sell appliances at cost or at a loss has passed by, and there is no reason whatever why the Appliance Department cannot break even on its sales or show a profit. And by being self-supporting the committee means that every expense incurred in the stocking, displaying, selling and advertising of the appliance be considered as well as the actual expense of labor and material used.

The committee feels that the appliance sold be as fully equipped as possible to render maximum and satisfactory service to the customer, and in the case of the gas range suggests that added equipment or appliances be included with the range, where, in the opinion of the company, this equipment would add to the service of the range to the customer, such as top burner lighters, castor cups, pendants, brackets, lights, toasters, etc.

The matter of fixing the price of the appliance is of the greatest import, and it is interesting to note that of the fifteen companies sending in replies to our questions, no two of them would present the same schedule of prices, provided they were buying any one standard range at a standard price. Some add one percentage to the invoice cost, some add separate percentages covering particular items, while in other cases the cost connected is taken as a basis to which to add the necessary percentages.

Arriving at Amounts to Be Charged

The committee recommends that one of two methods of arriving at the actual cost of the range sold and connected should be adopted, the one to be accepted by any particular company to be dependent upon the ability of that company to obtain accurate figures concerning connection costs over a recent protracted period, which figures may be corrected from period to period.

The first method recommended is to add for overhead and profit proper percentages to the cost of the range connected. By "cost connected" here we mean the invoice cost of the range plus freight, handling, stocking, delivering and connecting. These last items may be averaged over the protracted period mentioned above and added as a percentage or an amount to the invoice cost of the range. Theoretically we believe it correct that our selling and general expense should be added as a percentage to the cost of the range connected, as the invoice cost of the range is but a part of the cost that enters into putting the range in service ready to use.

It is not always convenient and sometimes not possible for some companies to get at exact costs of connecting appliances, and in these times most of us are reducing all the clerical work possible, therefore the committee thought it advisable to recommend a second method of arriving at our actual costs. In the second method the invoice cost of the range is taken as the basis to which other charges should be added.

Items that Should Be Considered in Arriving at Costs

The amounts added covering the items of connections and overhead should be taken as a rule on a percentage basis, for if the average amount in dollars and cents is taken the selling price of our smaller ranges will be too high and that of our high-priced cabinets too low in comparison. The percentage plan is adopted so generally that it needs no further comment.

The committee has listed a number of items that should be considered by every company endeavoring to get at their actual costs. These items

may not cover the entire field, but are a few which the committee has considered. They are: Freight, Handling, Stock Room Expenses, Use of Tools, Materials Used Connecting, Labor Connecting, Teaming Expense, Inspection, Superintendence, Office Management, Salesmen, Advertising, Demonstrating, Office Rent, Light, Heat, Gas Used, Billing, Collecting, Depreciation, Breakage, Allowances, Gratuitous Work, Exhibitions, Experimental, Fitters Waiting Orders, Insurance, Interest on Money Borrowed, etc.

To the total cost of the appliance "sold and connected," as arrived at through one of the two methods mentioned, whatever profit considered necessary should be added; and the committee recommends that where profit is desired the percentage of profit be a percentage of the selling price, as this is becoming established practice. That is, if you figure on a 10 per cent profit on a range costing "sold and connected" $27.00 you price the range $30.00. This would figure that of the selling price 90 per cent would be cost and 10 per cent. profit. The committee, however, recommends only that the appliance business be at least self-supporting, which leaves the question of profit to the individual companies themselves.

INVOICE COST PLUS FIFTY PER CENT

It can be readily seen that it would be impracticable for this committee to recommend any set standard of percentages to be added to cover any items which could be made that would fit all conditions. Costs of connections will vary with wages paid fitters, distances from distribution office, etc. Cost of selling will vary with the amount of advertising done, number of salesmen employed, methods of billing, collecting, etc., and therefore the percentages of costs to be considered cannot be made absolutely standard.

The method, however, can and should be standardized, and it is with the idea in view that there should be such a standardized method of merchandise price making that your committee has been working. We have endeavored to cover the subject as thoroughly as possible in this report, but if there are any points not clear or left uncovered we shall be very glad to give those points consideration and cover them in the completed form of the report.

As a matter of information the committee wishes to state that after careful analysis of the reports sent in and investigation in the companies of those represented on the committee as to costs of the items recommended in this report, it considers that an addition of 50 per cent to the invoice cost of the range would in most cases cover all connection and overhead cost and make the appliance business self-supporting. They recommend, however, that this figure be considered only as an average and that if it be used at all it be only temporarily, until each company can work out carefully their own costs.

The following members constitute the committee: H. J. Pettengill, Jr., chairman; M. B. Webber, J. C. D. Clark and F. A. Woodhead.

Tribune Institute O. K.'s Humphrey Radiantfire Heater

A recent form letter sent out by the General Gas Light Company, and signed by J. P. Conroy, manager of the company, will certainly act as a stimulant to the sales of gas appliances in many of the companies throughout the company.

This letter tells of the results of the test made by the Tribune Institute, conducted by the New York *Tribune*, and of their approval of the Humphrey Radiantfire Heater. A considerable write-up of this heater was given in the New York Sunday *Tribune*, Sept. 30, which bears weight, due to the fact that this is an impartial body, organized to protect the public against inefficient and impractical appliances.

The new Radiantfire has also been approved by the Good Housekeeping Institute.

N. C. G. A. Officers Inspect Welsbach Company's Plant at Gloucester, N. J.

The officers and directors of the National Commercial Gas Association held their October meeting in Philadelphia at the Bellevue-Stratford Hotel, Friday, Oct. 19. Following the meeting the directors were the guests of C. W. Wardell at luncheon at the Bellevue-Stratford, after which they were taken by automobile to Gloucester for inspection of the Welsbach Company's plant. The following officers and directors were present:

James T. Lynn, president, Detroit, Mich.; H. D. Schall, Detroit, Mich.; W. W. Barnes, New York City; Louis Stotz, secretary and assistant treasurer, New York City; C. A. Munroe, Chicago, Ill.; H. S. Schutt, Philadelphia, Pa.; R. R. Young, Newark, N. J.; C. E. Bartlett, Philadelphia, Pa.; W. G. Gribbel, Philadelphia, Pa.; J. C. D. Clark, Boston, Mass.; G. H. Scranton, Derby, Conn.; Jansen Haines, Des Moines, Ia.; E. J. Rutledge, Philadelphia, Pa.; C. W. Bennett, Detroit, Mich.; C. W. Wardell, Gloucester, N. J.

An enjoyable evening was spent at the Union League and at the Garrick Theater as guests of Sidney Mason, president of the Welsbach Company.

Institutions as Prospects for Gas Kitchen Equipment

Gas Ranges Prove More Economical Than Continuously-Fired Coal Ranges

Much new business lies in wait in many cities where the gas company manager has not yet approached the various institutions and hospitals in his district. Many have attempted, but their proof of the value of gas-fired kitchen equipment was perhaps not strong enough. The experience of the Allentown-Bethlehem Gas Company, of Allentown, Pa., as related by J. Ward Crankshaw, commercial agent, in the October issue of *New Business*, published by the United Gas Improvement Company, of Philadelphia, Pa., may be helpful in lining up the evidence for such business.

The Homeopathic Hospital for the Insane, located at Rittersville, Pa., was built by the State five years ago, stated Mr. Crankshaw. Coal ranges were specified by the authorities for use in the kitchen, as they considered coal a cheaper fuel than gas; and, besides, our mains were not located near enough to the institution to warrant their extension at that time.

Late in the spring of 1915, however, after our mains had been extended, we interviewed the superintendent, Dr. Klopp, with the thought of submitting to him a proposition for equipping his kitchen with gas. He looked upon the proposition with favor, but as his coal ranges had been in service such a short time and were nearly new, and as funds were none too plentiful, he hesitated to make another outlay to re-equip the kitchens. He realized, however, the many advantages of gas as a fuel,

and allowed us access to his kitchen to gather data on their coal costs.

Six sections of coal range were in service in the main kitchen and three sections in the administration kitchen.

Batteries of steam kettles and steam roasters were used, and it was apparent that the bulk of the cooking, such as boiling stocks for soups and cooking vegetables, was being done with steam.

Coal ranges were really auxiliary units to the cooking equipment and were used only for roasting meats, cooking vegetables and desserts.

Owing to the fact that 1,100 or more persons must be fed simultaneously from this one kitchen every meal time, it necessitated firing the coal ranges continuously for the twenty-four hours so that every meal would be ready on time. This feature applied particularly to breakfast, for in an institution of this character the inmates arise at 5.30; therefore it was necessary to have help in the kitchen at 3 a. m. to stoke the fires and have the meal ready by 6.30 a. m.

It was due in part to the amount of coal required to fire these ranges continuously, together with the cost of range repairs, and the fact that steam was used for the major part of the cooking, that the officials of the institution were persuaded to look on a gas proposition with favor.

Figures were gathered as to costs of cooking with coal, including actual delivery to bins, storage, labor to stoke fires; hauling coal and removing ashes, firebrick renewals and grates, and cleaning and painting the kitchen.

We estimated that the gas consumption for the two kitchens would not exceed 125,000 cu. ft. monthly. Upon this basis the officials agreed to the installation of gas ranges, and we agreed to accept payments for the equipment over a period of eighteen months.

It was necessary for us to run 2,500 ft. of 4 and 6-in. mains to supply the several buildings of the institution.

A two-section hotel range with broiler attachment is now used in the administration kitchen. Here meals are prepared for the superintendent's staff, totaling seventy-five persons. In another part of the building a six-section hotel range has been installed with elevated high-plate shelf and broiler, in the main kitchen, where meals are prepared for 1,100 or more inmates.

Below is tabulated the gas consumptions on the equipment in the various buildings where gas is used for cooking, and in the laboratory and receiving ward:

	Laboratory	Receiving Ward	Main Building	Admin. Building
Nov. 1916.	1,000	2,300	31,800	26,000
Dec. 1916.	1,500	6,300	50,500	30,500
Jan. 1917.	1,500	5,800	45,600	27,900
Feb. 1917.	1,600	6,700	52,100	29,300
Mar. 1917.	1,800	5,800	45,900	23,700
Apr. 1917.	2,300	2,500	51,300	24,400
May 1917.	2,300	3,200	59,200	25,000
Total	12,000	32,600	336,400	186,800

Combining the consumptions of gas used in the kitchens in the administration building, feeding seventy-five persons, and that in the main kitchen, feeding 1,100 persons, you will note surprisingly low consumptions, averages for a period of seven months 74,700 cu. ft. monthly.

For feeding 1,175 persons three meals daily, or a total of 3,525 meals, or 105,750 meals monthly, you will note a gas consumption of approximately seven-tenths of a cubic foot per meal.

It cannot be taken for granted that all kitchens will compare with this particular installation as regards operating costs. Our figures show conclusively, however, that if conditions are analyzed properly many kitchens now using coal could be changed to gas.

Appliance Sales Still on the Increase in Chicago

Despite the unsettled conditions caused in many homes and business concerns by our entrance into the world war for democracy, and despite the fact that many homes are said to have been broken up as a result of the first draft for the national army, a remarkable showing of increased sales of gas appliances is made by the commercial department of the Peoples Gas Light & Coke Company, of Chicago.

Figures for sales during the first week of October, 1917, as compared with the corresponding week of 1916, show increases ranging from 4 per cent to 466.66 per cent and averaging approximately 130 per cent. These figures do not include gas heated washing machines and incinerators which were not on sale a year ago and which scored heavy sales during the period mentioned.

The following increases for the first six days of October, 1917, over those of the same period in 1916 are reported:

	Per Cent
Single ovens	46.51
Double ovens	4.00
Cabinets	16.13
Tank water heaters	14.28
Space heaters	304.65
Kitchen heaters	103.28
Automatic water heaters	360.00
Gasteam radiators	466.66
Arc lamp installations	59.01

Chicago Company Has Installed 17,000 Free Mantles

The Peoples Gas Light & Coke Company, of Chicago, has installed 17,000 free mantles since Aug. 1, 1917, when the new gas ordinance of that city went into effect authorizing a change in standard, and requiring the company to give free mantles to all consumers who were wholly dependent upon open-flame burners for light. The company is installing two junior mantles free wherever they are requested under the conditions described in the ordinance. Although thousands of dollars have been spent by the Peoples company to advertise the offer of free mantles many hundreds of its patrons, who are believed to be still using only open-flame burners, have failed to ask for the mantles.

Merger Announced Between Rochester and Canandaigua Companies

Papers were filed at Rochester, N. Y., recently showing that the Canandaigua Gas Light Company has been merged with the Rochester Railway & Light Company. For some years the local concern has been controlled entirely by the Rochester company.

It is understood that the merger will not have any outward effect on the Canandaigua concern.

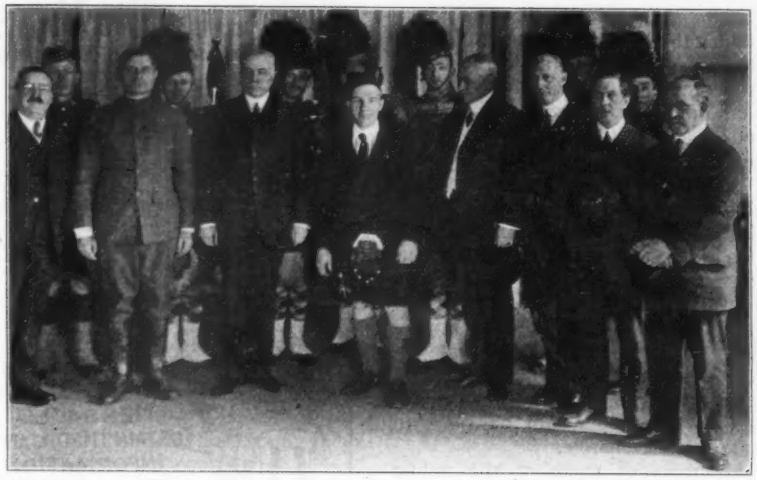
THE PORTER OIL & GAS COMPANY, of Mount Carmel, Ill., has filed with Secretary of State Emmerson of Illinois an application for incorporation of a company whose capital stock is to be $25,000. The incorporators are: George W. Porter, Flosic A. Porter and Charles F. Freshwater.

News of the Gas Industry

Harry Lauder Makes Liberty Loan Appeal at New York Gas Company's Auditorium

Over 1,000 Representatives of Utility Companies Hear His Address and a Large Response Results

Harry Lauder made a Liberty Bond address in the Auditorium, Consolidated Gas Company's Building, Fifteenth Street and Irving Place, New York, shortly after noon, Friday, Oct. 26. He was accompanied by the Rev. George Adams, an Episcopalian minister, who visited the firing line in England and France a few months ago. A thousand representatives of the Consolidated Gas Company, the United Electric Light & Power Company and the New York Edison Company were gathered in the Auditorium to hear Lauder's fervent appeal to American patriotism. He sang one verse of one of his favorite Scotch ballads, which has become a hymn to Lauder since his only child, a son, Captain Lauder, was killed a few months ago on the French firing line. Lauder and the Rev. Adams and Mr. Buckley were entertained at luncheon at the conclusion of the Auditorium ceremonies.



LEFT TO RIGHT—E. I. KENNY, CHAPLAIN WARING OF GOVERNOR'S ISLAND, GEO. B. CORTELYOU, PRES. CON. GAS CO.; HARRY LAUDER, ROB'T A. CARTER, VICE-PRES. CON. GAS CO., REV. DR. GEO. ADAMS AND DOMINICK BUCKLEY. ADAMS AND BUCKLEY ARE ALL OLD PERSONAL FRIENDS OF LAUDER'S. MR. LAUDER'S HIGHLAND PIPERS ARE IN THE BACKGROUND.

Rates at Lincoln, Neb., Insufficient—Increase Asked

Gas rates in Lincoln, Neb., may go up with everything else, depending whether the city council recognizes the appeal made by the Lincoln Gas Company that the present rate of $1 per 1,000 is not sufficient to cover cost of production. The change asked for is of a temporary nature lasting only until the war is over and business again reaches its normal condition.

The company says the net cost of producing gas the last three months was 94.36 cents per 1,000 cu. ft., as against 64.76 cents in 1915. The company says that in 1913 the cost of coke was $6.90, while now it is $12.60. The same year the price of gas oil was 3.21 cents per gallon, while now it is 6 cents, and that material has advanced 100 per cent.

New Rates for Noblesville & Tipton, Ind.

The Public Service Commission of Indiana has just entered an order in which it allowed a substantial increase in rates for mixed gas to the Indiana Gas Light Company, of Noblesville, Ind., which supplies gas to Noblesville and Tipton. The company had petitioned for slightly higher rates than the commission authorized.

The order, in part, follows:

IT IS THEREFORE ORDERED BY THE PUBLIC SERVICE COMMISSION OF INDIANA, that the Indiana Gas Light Company, of Noblesville, Ind., shall file on or before Nov. 15, 1917, effective on bills rendered Dec. 1, 1917, the following schedule of rates, tolls, charges, rules and regulations:

First 5,000 cu. ft. of gas used through one meter per mo.	$1.10 per M.
Next 50,000 cu. ft. of gas used through one meter per mo.	.85 per M.
All over 55,000 cu. ft. of gas used through one meter per mo.	.75 per M.

Upon which a discount of 10 cents per thousand cubic feet consumed per month shall be allowed, providing bills are paid on or before the tenth day of the month succeeding the month in which the service is rendered.

MINIMUM CHARGE—$1.00 per month per meter.

Rule.—All bills shall be due the first of each month for gas consumed during the preceding month, and if not paid within ten days the company may discontinue service, and shall not resume service until all arrears have been paid, plus 50 cents to cover cost of turning off and turning on gas.

The company has been supplying natural gas at the following rates:

First 1,000 cu. ft.	$0.75 per M.
Next 4,000 cu. ft.	.60 per M.
Next 20,000 cu. ft.	40c. per M.
All over 25,000 cu. ft.	.30 per M.

Minimum charge, 75c. per month.

New Gas and Fuel Company Incorporated in Ohio

The Empire Gas & Fuel Company, of Wooster, Ohio, was incorporated at Columbus by Ira H. Crum, George R. Hedges, George S. Long, H. B. Monnet and Frank Raymond, nearly all of whom are Columbus men. Mr. Long was secretary to Governor Harmon during his term of office. The company expects to develop leases in Wayne County.

Indiana Commission Dismisses Heat Unit Petition

The Public Service Commission has dismissed the petition filed by the Indiana Gas Association several months ago asking for permission to reduce the heat units from 600 B.t.u. to 550. It was made evident that the companies wished to reduce the heat units for the purpose of being better situated to provide by-products necessary to the conduct of the war.

Shortly after the petition was filed, a conference was called by the Government Bureau of Standards at Washington, and one of the subjects considered was the standard of heat units for gas. Representatives of gas companies over the country insisted at that conference that the heat units might be reduced without detriment to the gas, and they sought to show that it would be right to make such a change.

Members of some of the public service commissions over the country, among them E. I. Lewis, chairman of the Indiana Commission, opposed the plan, however, and laid down the proposition that while there might not be serious complaint against the idea of reducing the heat units, this must not be done unless the gas companies reduced their gas rates accordingly.

Brockport, N. Y., Gas Light Company Submits Earnings and Expense Statement

In its appeal for increased rates through a maintenance charge the Brockport Gas Light Company has submitted a detailed report of the earnings and expenses for 1914, 1915, 1916 and nine months of 1917.

"The figures speak for themselves. A comparison between the showing of the annual reports and the figures for the nine months ending Sept. 30, brings out the startling fact that the expense, cost of operating, has increased to such an extent that it has cost us 10 per cent more to operate for nine months of this year than for any full year back to 1910.

"Our bonded indebtedness is $67,000. We have $25,000 of common stock, no preferred. The affairs of the company were carefully investigated in 1912 by the Public Service Commission and an order issued authorizing us to issue and sell bonds to the above amount.

"There has been no dividends paid on the stock since the present management took charge, nor for years previous to that time. We did not expect to pay dividends, the best we could hope for was to meet our operating expenses and pay interest on our bonds. This we have done and must continue to do if we are to survive.

"The small surplus we have been able to show each year has been absorbed in extensions, betterments and new meters." * * *

The figures submitted for consideration are as follows:

INCOME STATEMENT

	1914	1915	1916	9 Mos. to Oct. 1, 1917
Total gross revenue	$14,421.77	$14,759.77	$14,791.23	$11,150.72
Other revenue	1,067.65	1,318.19	633.70	360.86
Total revenue all sources	15,489.42	16,077.96	15,424.93	11,511.58
Expense gas line 51	11,107.34	10,644.50	10,993.65	11,414.14
Earnings	4,382.08	5,433.46	4,431.28	96.44
Less interest	3,390.00	3,360.00	3,360.00	2,520.00
Net earnings	992.08	2,073.46	1,071.28	2,423.56

EXPENSE REPORT

Coal carbonized	$5,460.87	$6,148.76	$5,646.72	$6,025.51
Enricher	36.00	35.49	50.39	405.00
Bench fuel	1,361.27	1,521.66	1,322.50	1,317.80
Total cost of materials	6,858.14	7,705.91	7,019.61	7,748.31
Total residuals returned	3,739.96	3,958.93	3,853.97	3,648.82
Net cost of materials	3,118.18	3,746.98	3,165.64	4,099.49
Total cost in holder	6,786.99	7,277.58	6,893.68	7,534.72
Total distribution expense	1,197.87	1,145.04	1,385.02	1,572.32
Total general and miscellaneous	2,339.44	2,270.63	2,764.45	2,355.35
Less duplicate gas charges	71.86	48.75	49.50	48.25
Total net cost of gas	10,252.44	10,644.50	10,993.65	11,414.14

Rochester Company Publishes Daily Messages, Showing How Gas May Be Used More Economically

GAS AND ELECTRIC NEWS
GAS AND ELECTRIC NEWS
LET US PROVE TO YOU THE BIG DIFFERENCE IN CURRENT CONSUMPTION BETWEEN MAZDA AND CARBON AND GEM LAMPS
Rochester Railway and Light Co.
THE UNITED STATES IS AT WAR!
ECONOMIZE ON GAS AND ELECTRICITY AND HELP THE NATION WIN THE WAR
WOULD YOU SPEND 60 CENTS IN ORDER TO SAVE 13 DOLLARS
STUDY THESE FIGURES
OPEN FLAME
WELSBACH ACORN
Rochester Railway and Light Co.
What It Means To Burn Gas Stoves Needlessly or Wastefully For 10 Minutes Daily In the Homes of Rochester
STOP THE WASTE OF GAS AND SAVE COAL
Rochester Railway and Light Co
OPEN FLAME GAS BURNERS ARE BOTH WASTEFUL AND UNSATISFACTORY. USE WELSBACHS.
Stop the Waste
Use Welsbach Mantle Burners
Rochester Railway and Light Company
DO YOU READ THE COMPANY'S DAILY ADVERTISEMENTS
THESE DAILY MESSAGES CONTAIN IMPORTANT INFORMATION, IT'S UP TO YOU TO HELP

REPRINT OF TWO-PAGE SPREAD APPEARING IN THE GAS & ELECTRIC NEWS —HOUSE ORGAN OF THE ROCHESTER RAILWAY & LIGHT COMPANY

Central West Coal Situation Less Acute

With the return to work this week of practically all the coal miners who went on strike in Illinois and Indiana last week, the total situation, though still serious, became less acute. It is estimated that 35,000 miners struck in Illinois alone. Although a record daily tonnage of coal has been mined during the last few days, it is said by operators to be impossible to make up this winter the loss in coal mined resulting from the one week strike which ended only when the Federal Government threatened to interfere.

Excessive Demand at Indianapolis Becomes Acute

Daily Demand of 16,000,000 Cu. Ft. Faced, Though Plant's Capacity is 10,000,000 Cu. Ft. with a Possible Maximum Output of 11,500,000 Cu. Ft.

Drastic steps to avert a threatening famine of gas for cooking were taken recently at Indianapolis, Ind., at a conference of the Public Service Commission, Mayor Joseph E. Bell, B. J. T. Jeup, city engineer, and J. D. Forrest, general manager of the Citizens Gas Company.

The officials agreed that to conserve the gas supply in Indianapolis it is necessary to prohibit absolutely the abuse of gas usage by persons proposing to depend on it immoderately for heating, especially that they may save on coal bills.

Mayor Bell announced following the conference that the city stood ready to invoke its police powers to prevent this waste of gas that threatened to leave a pressure too low to cook with.

Able to Meet Demand of Normal Times

According to Mr. Forrest's presentation of the case to the commission the gas company is able to supply gas for all uses to which it is put in ordinary times, but that the company cannot supply gas for persons who want to heat entire houses with it without endangering the supply to persons who wish only to cook with it. Not long ago a low-pressure period caused a number of complaints to the commission and also to Mayor Bell. Consequently the officials decided that it would be wise to take steps now instead of waiting until the gas mains were emptied. Such a conditon would be almost a calamity, for it would be a month or two before any gas at all would then be available, it was said.

Unite in Warning

At the close of the conference the commission gave out the following as the united warning of the commission, the city and the gas company:

"To the People of Indianapolis:

"The gas supply of this city will be inadequate to meet the demands unless consumers refrain from using it to meet a shortage in the coal supply.

"The gas plant was not built to meet all of the demands for heating in the city. This service cannot be substituted for coal or other fuel. The gas company has capacity for supplying 10,000,000 cu. ft. a day under continuous operation. It can produce about 11,500,000 cu. ft. a day under perfect operating conditions, but it would be impossible to maintain such production regularly.

Demand for 1,000,000 Cu. Ft. Per Hour

"The use of gas for house heating by persons who heretofore have depended on furnaces and other coal-burning appliances has recently created a demand for gas exceeding 1,000,000 cu. ft. an hour. This is clearly beyond the capacity of the plant. Such a substitution of gas for coal and other fuels has already caused a shortage of supply on several days.

"The gas company is face to face with a demand of 15,000,000 or 16,000,000 cu. ft. a day. It cannot meet it with its present equipment.

"It has been and is now impossible for the company to increase its gas production capacity. The demand of the Federal Government for steel plates, such as used for constructing gas holders, has made it impossible to get such material. It is equally impossible to get material at this time for enlarging the gas generating equipment.

Endangered Repeatedly

"On more than one occasion this fall the gas supply of the entire city has been seriously endangered by abuses in the use of gas. If, by reason of this unusual demand for gas, the mains were once emptied, it would require from thirty to sixty days to resume the service of gas.

"It becomes imperative that definite steps be taken immediately to conserve the gas supply. The company can supply sufficient gas for all those purposes for which gas has been used in the years 1915 and 1916. This means that there will be no curtailment of gas to those who use the same amount they used last year for cooking, water heating, heating rooms temporarily or occasonally by grates or for ordinary manufacturing purposes. Abuses in the use of gas must, however, be prohibited.

"The company cannot supply gas to meet a shortage in coal. All consumers are warned against using gas for such purposes. The principal abuses are found where patrons use the cook stove or gas range for heating purposes or use grates or heaters for continuous heating.

"The city faces a grave situation in this matter. In conserving the supply for all the people of the city, public welfare will require that consumers who persist in substituting gas heating for customary modes of heating be cut off.

"All persons, therefore, must limit the quantity of gas taken at any time during the present season, to the purposes and amounts consumed by them during the corresponding months of the year 1916."

Illinois Cities to Protest Heat Unit Standard

Officials of thirty-five cities and villages of Illinois at a recent meeting in Chicago formed an organization which will protest the petition of the Public Service Company of Northern Illinois that it be allowed to make its gas to a 565 B.t.u. standard. The petition is now before the Illinois Public Utilities Commission and a hearing thereon will be held in the near future. F. W. Pringle, a lawyer of Chicago and Oak Park, Ill., was chosen president of the protesting organization.

Increase Asked by Columbia, Mo., Company

The Watts Engineering Company, which owns the Columbia gas works, states in its recent petition that on Feb. 3, 1915, the commission caused it to reduce the rates from $1.75 net to $1.35 net over 1,000 cu. ft. to consumers using less than 10,000 cu. ft. a month and from $1.60 to $1.26 net per 1,000 cu. ft. a month to consumers using over 10,000 cu. ft.

The gas company appealed from the ruling of the public service commission, but the ruling was upheld by the Circuit Court of Cole County and by the Supreme Court. Since the decision of the Supreme Court the gas company has charged the rates ordered by the commission.

The gas company bases its contention for an increase of rates on the fact that within the last few months the cost of production of gas has increased so materially, particularly by reason of the greater cost of coal, coke, oil and other materials used in such production, as to cause a large decrease in the net income derived by the company from gas sales. The price of coke has increased from $6.70 to $12.90 a ton.

The date of the hearing of the petition has not been set, and the city officials will be informed of it later.

Municipal Plant Increases Rates for Saint Catharines, Ont.

Finding it impossible to longer sell artificial gas at 80 cents a thousand, the city of Saint Catharines has been compelled to raise the price to $1 a thousand. The city owns the plant.

Re-Hearing Asked in New York Heat Unit Discussion

The Consolidated Gas Company, of New York, has entered its petition for a rehearing with the Public Service Commission, First District, "in the matter of the hearing on the motion of the commission as to the standards for measurement of the quality and power of the gas manufactured, distributed or sold by gas corporations within the First District, and the rates or charges for such gas service, based upon such standards."

The order filed by the commission has not met with the approval of the gas companies, due particularly to the fact that the commission had acted before the gas companies had had the opportunity of presenting all of their evidence. This order attempts to give the gas corporations, as an alternative to the candlepower standard now fixed by statute, the right, at their election, to furnish gas of a monthly average total heating power of not less than 650 B.t.u. per cubic foot, but still at the same price which the gas companies are serving the customers at present.

Semet-Solvay Plant May Supply Gas for North Tonawanda and Prevent Increase

Through a proposition which the officials of the Niagara Light, Heat & Power Company, of Tonawanda, presented to officials of Tonawanda and North Tonawanda at a private conference recently, the Tonawandas may continue to get their gas supply from the local company at the rate of $1 per 1,000 cu. ft. of gas.

The supply will come from the new plant of the Semet-Solvay Company on the River Road in the town of Tonawanda, the North Tonawanda Company acting as distributer. If the proposition submitted is carried out, the gas plant in that town will be closed and the Tonawandas will have access to five times the amount of gas that is used at the present time.

The present minimum supply of gas at the Semet-Solvay plant is 500,000 cu. ft. of gas a day. The company is supplying gas to the Wickwire steel plant in the town. The company will add greatly to its capacity in the event the two cities accept the proposition of the gas company. The Tonawandas to-day utilize about 300,000 ft. per day.

It was intimated that the project could not be carried out until spring, but that should the Public Service Commission sanction the plan, the local gas company would not try to increase its rates, but would continue the old rates until the new supply is piped here. About 5 miles of gas mains would have to be laid through the town of Tonawanda.

Personal Notes

CHARLES M. EYMAN, for the past two years general manager of the Utah Gas & Coke Company, Salt Lake City, Utah, has resigned his position, to take effect Nov. 1. Mr. Eyman will take up other interests in southern California. It is with a great deal of regret that his associates and friends in Salt Lake City note his departure. Mr. Eyman has figured very prominently in the gas industry of latter years as engineer of the Pueblo Gas Company, of Pueblo, Col., manager of the Boise Gas Light & Coke Company, of Boise, Idaho, and general manager of the Utah Gas & Coke Company. Before leaving Salt Lake City, at a general meeting of all employees of the company, he was presented with several handsome gifts as tokens of the esteem in which he was held by all those associated with him.

C. N. CHUBB has resigned as manager of the South Bend interests of the Northern Indiana Gas & Electric Company, and will leave Nov. 1 to become manager of the Peoples Light Company, of Davenport, Iowa, one of the interests of the Tri-City Railway & Light Company. Mr. Chubb came to South Bend May 1, 1915, from the company's plant at Michigan City.

J. C. GREY, who for several years has been with the Savannah (Ga.) Gas Company as superintendent, has recently accepted the position of chief engineer for the Northern Indiana Gas & Electric Company, of Fort Wayne, Ind., succeeding W. I. Battin.

HERMAN BURGI, consulting engineer of Springfield, Mass., read a very interesting paper on the installation of 6-in. and 18-in. high-pressure lines over the river at Springfield at the monthly dinner of the heads of several departments of the Portland (Me.) Gas Light Company, at the Congress Square Hotel. The following were seated at the tables: Col. Fred N. Dow, Burton Smart, Herbert Payson, Herman Burgi, Charles E. West, Charles A. Fullerton, A. G. Spinney, E. A. Willard, Charles O. Pratt, E. C. Dyer, G. N. Coyle, George F. Hersey, John E. Bump.

THE CALUMET (MICH.) GAS & COKE COMPANY, successor to the Calument Gas Company, has organized with the following officers: President W. M. Gibson; vice-president and general manager, Gene Bandetinni; secretary and treasurer, F. K. Guck. A. P. Eva has been appointed to succeed W. R. Vivian, chief accountant, who retires from the company Nov. 15.

B. D. HARRIMAN, for the past two years commercial manager for the Connecticut Light & Power Company, at Norwalk, Conn., has resigned his position to take charge of the plant of the Goldsboro (N. C.) Gas & Fuel Company. Mr. Harriman leaves a most successful record behind him in Norwalk.

W. I. BATTIN, who for several years has been located in Fort Wayne in the capacity of chief engineer of the various properties comprising the Southern Division of the Northern Indiana Gas & Electric Company, including Bluffton, Decatur, Wabash, Peru, Logansport, Lebanon and Crawfordsville, has resigned to accept a position with the United Gas Improvement Company, of Philadelphia.

RAY STRETCH has recently been made general manager of the plant of the Union Gas & Electric Company at Bloomington, Ill. For some time past he has been commercial manager of the Wilkes-Barre (Pa.) Company.

JAMES F. MEAGHER, formerly president of the Peoples Gas Light & Coke Company, of Chicago, Ill., died Oct. 30, at Greenwich, Conn.

HENRY L. TRAUB, formerly head collector of the Berkeley, Cal., office of the Pacific Gas & Electric Company, has recently accepted the position of deputy city treasurer.

E. J. WAGNER, for the past year manager of the Gratiot County Gas Company, Alma, Mich., left recently for Johnston City, Tenn., where he becomes manager of the Washington County Gas Company.

Societies and Associations

THE TEXAS GAS ASSOCIATION held its second annual convention in the English Room of the Adolphus Hotel, Dallas, Texas, Oct. 16-17, 1917. The meeting was called to order by President M. T. Walker, of Beaumont, with fifty-three members present. The association passed a resolution pledging its united efforts and support to the President of the United States and to the Governor of Texas during the present war. Copies of the resolution will be sent to President Wilson and Governor Hobby. The second Liberty Loan bond issue was indorsed. The association also agreed to assist the War Department in procuring men skilled in the gas and chemical industries for foreign service. A letter from the headquarters of one of the United States engineering camps in the District of Columbia was read. It stated that there is an urgent need in the army for men trained in gas, chemical and mechanical lines and that a gas and flame regiment is now being organized by the Government, which, it is hoped, will be fully recruited. The assistance of the association was asked in securing these men. The association will send letters to all the gas companies affiliated with it, urging them to assist the Government in this way.

Papers by various authors were read and discussions on them followed. A banquet was given the members at 6.30 p. m. on the 16th, followed by a theater party at the Majestic. Before adjournment the association voted to affiliate with the National Gas Association of America. Fort Worth was chosen as the place of meeting in 1918. The third annual convention will be held there in September. Officers for the ensuing year were elected as follows: F. J. Storm, Amarillo, president; W. H. Clifford, Palestine, first vice-president; W. H. Sedberry, Marshall, second vice-president; C. H. Seidenglanz, Dallas, secretary; P. E. Nicholls, of Galveston, and J. S. Connelly, of Atlanta, directors. Mr. Seidenglanz was re-elected.

THE ILLUMINATING ENGINEERING SOCIETY will hold the next meeting of the New York Section in the Engineering Societies Building, 29 West Thirty-ninth Street, New York City, Thursday evening, Nov. 8, at 8 p. m. There will be two very interesting papers read at this meeting. "Value of Illuminating Engineering to the Gas Industry," by Robert ff. Pierce, which deals with the activities of the public utilities as affecting the consumer, dividing these activities into engineering and commercial; the scope and definition of engineering and commercial activities; relation of the engineer to the scientist; the limitations of illuminating engineering; the definition of service and its scope, and its relation to the customer; relations of the illuminant to the service, and the responsibility of the utility company; responsibility of the salesman; relation of the engineer to the consumer, with examples. The loss of contracts due to narrow engineering principles.—Period over which illuminating engineering in the gas industry has been in force, with examples and proofs.—Obstacles in the way of illuminating enginering from the gas companies, and suggestions for remedy.—Quantity of gas sold for illumination.—The economic consumption and load factor.—The relation of the lighting business to the gas company.—The relation of the lighting business to the lighting service.—The relation of cost of lighting to business.—The relation of the service to the consumer.—Reliability of service and training of salesmen. The other paper, "Illuminating Engineering as a Commercial Force," by a committee of the Lighting Sales Bureau, National Electric Light Association, consisting of Messrs. Hogue, Law and Whitehorne, which treats of illuminating engineering as a basis of central station practice—the purpose of illumination engineering, first, in developing new customers; second, in interesting prospective customers; third, promoting satisfaction to customers, with examples.—The relation of work to magnitude of company.—The organization of the illuminating engineering bureau with its work and specialties.—Classification of the work into engineering and industrial, the engineering divided into: Engineering advice, large building oversight, illumination service, lamp questions, fixture design.—Scope of work with reports of inspection, specifications and estimates. Private plans, recommendations of changes, work of inspection and summary, sales and renewal of lamps, handling of fixture orders.—The aim of the work is, first, to get new business; second, to improve present lighting installations; third, to better service.—The advertising of service and advice, the question of free service, the handling of complaints, reduction of bills, and the satisfaction of the customer, testimonials and indirect influences.

THE NATIONAL COMMERCIAL GAS ASSOCIATION, Manufacturers' Section, held a meeting at the Hotel McAlpin, New York City, Oct. 16, 1917, at 8 p. m., at which H. D. Schall, president, presided. After the reading of the minutes of the meeting held in February were dispensed with, a report was read by President Schall, following which were several reports by the different committees. William M. Crane made a motion which was seconded and carried that the Manufacturers' Section carry an Honor Roll to comprise the name of those members in the section who had enlisted for service abroad. The following names were suggested: Russell E. Sard, Albany, N. Y.; W. Griffin Gribbel, Philadelphia, Pa.; John W. Calder, Utica, N. Y. All members were requested to notify the secretary of any members who had enlisted in order that their names might be enrolled on the Honor Roll of the section. On motion, seconded and carried, the treasurer was authorized to invest in the Second Liberty Loan Bonds a sum not exceeding $1,000. The amount, however, is left to the Board of Control. It was moved, seconded and carried that the flags now in storage in Washington be donated to the Red Cross, and the pipe, also in storage at Washington, be sold by the following committee, appointed by the chair: William M. Crane, Wm. M. Crane & Co.; Mr. Plucker, of Isaac Sheppard & Co., and Mr. Oswald, Crane Company, of Chicago, Ill. Several other matters were taken up and disposed of.

Construction Notes

Bonds Authorized for Mixing Station in Kansas

The Wyandotte County Gas Company was recently granted authority by the Kansas Utilities Commission to issue $145,000 of bonds for the purpose of making the improvements necessary for the company to supply manufactured gas to its patrons.

Under the plan, which was approved by the Chamber of Commerce, the company proposes a scheme of mixing natural and artificial gas in order to obtain a supply adequate for its consumers' needs.

The company will expend $80,000 on the erection of a mixing station and use the remaining $65,000 in making improvements and extensions on its present plant.

Contract Awarded for Holder Foundation

Contract has been awarded to Leonardt & Peck for the construction of a reinforced concrete foundation for a gas tank at 1600 North Main Street, Los Angeles, Cal., for the Economic Gas Company. It will be 120 feet in diameter and 21 feet deep, and will cost $22,500.

Pipe Line Being Laid by Southbridge Company Nearing Completion

Within three weeks at the most, or after a few more small connections have been made, the gas pipe line recently installed between Southbridge, Dudley and Webster by the Webster & Southbridge Gas & Electric Company will be completed for use, and officials of the company recently stated that the gas will be turned into the pipes at once.

The work of laying the eleven miles of 3-in. pipe, which the line required, with several additional miles of connecting pipe, was begun a year ago last spring, but officials claim that a layoff of seven months was caused by the weather last winter. Deducting this from the total, a record-breaking result ensues, as a job of this kind would require at least three years, on an average.

All the work was done by employees of the gas company, and its own machinery was used, machinery for all capacities being of the most approved and up-to-date style.

The gasoline trench-digger, which the company used, was a distinct novelty to many persons who witnessed it in operation, and many expressions of surprise at its accuracy and rapidity were heard.

A pipe layer of modern type also was used to advantage. A trench filler was utilized to fill trenches after the pipe had been installed. A tamper, to compress the earth in the refilled trench, also was used. Hence it well might be stated that the whole work was done by machinery.

Then, in addition to the foregoing, an electric welder was used in welding together the miles of pipe required. Pipe joiners for joining pipes so that all would be firm, and pressure testers for testing pipe to see that it would withstand the high pressure behind the gas, were used to advantage, attracting scores to the base of operations.

The object of expending the thousands of dollars which the laying of this line required, primarily was to increase the supply of gas in Southbridge. In addition 100 homes that lay in the vicinity of the new line between Southbridge and Webster now will have gas connections.

In digging the line it was found necessary to cross this old line several times, as the line, instead of running parallel with the street, with connection from the main line to each lamppost, was seen to be running zigzag, from post to post.

The present Southbridge gas and electric plants of the concern, located near Foster Street, in all probability will receive a jolt by having the gas plant withdrawn from Southbridge and sent to Webster, said officials of the company recently. Nothing definite is ready for publication on this matter.

Large Assembly Room Opened In New Haven

The New Haven (Conn.) Gas Light Company invites the women of the city to visit their enlarged assembly room. This room, which is designed for public meetings and demonstrations, has been considerably enlarged and improved, and everyone interested will be welcome. It will be used during the winter for meetings of the Household Economic Department of the New Haven Women's Club, the home-making department of the County Farm Bureau, and other organizations, especially when demonstrations are to be given.

Gratiot County Company Enlarging Its Plant

Owing to the fact that Alma, Mich., is stretching out and adding consistently to its homes, the Gratiot County Gas Company has been compelled to take steps to double capacity. This improvement plan will entail a large investment, but will bring the company's Alma plant up to a high standard of efficiency, the most modern equipment being installed.

The Gratiot County Gas Company was organized for the purpose of furnishing gas to Alma, St. Louis, Ithaca and Breckenridge. The latter town lights all its city streets by gas, this being the only form of municipal lighting.

Alma was selected as the main offices of the company and its manufacturing is done there. The number of patrons has doubled in this city in the past twelve months and the extending of the various additions and plants has necessitated many new main extensions.

The enlargement plan calls for many new labor-saving devices in gas production and distribution. Some of these modern devices include coal and coke elevators, trestles and devices for loading and unloading both gas and coke. The plant is equipped for the manufacture of both coal and water gas.

The industrial use of gas is now one of the largest items of the company and has more additional demands upon the company's capacity. It has been an important factor in the development of the company's business. As an illustration, the Republic Truck Company with a production plant of 40,000 trucks a year, is using gas exclusively for the japanning ovens, cyanide ovens, soldering and lighting.

The clerical and administrative business has already forced the company from its old offices in Alma. The company will remodel the offices entirely and create a spacious, roomy place that will be one of the model gas offices of the State.